

**Prepared by:**

**RAND Corporation**

**A Product of the CMS Alliance to Modernize Healthcare  
Federally Funded Research and Development Center  
Centers for Medicare & Medicaid Services (CMS)**

**Prepared For:**

U.S. Department of Veterans Affairs

At the Request of:

Veterans Access, Choice, and Accountability Act of 2014

Section 201: Independent Assessment of the Health Care Delivery  
Systems and Management Processes of the Department of Veterans  
Affairs

## **Assessment B (Health Care Capabilities)**

September 1, 2015

Prepared for CAMH under:

Prime Contract No. HHS-M500-2012-00008I

Prime Task Order No. VA118A14F0373

*This document was prepared for authorized distribution only. It has not been approved for public release.*

*©2015 RAND Corporation. All rights reserved.*

This page intentionally left blank.

## Assessment B Author Credits

Peter Hussey  
Jeanne Ringel  
**Assessment B Study Directors**

Carrie Farmer  
**RAND Study Director**

Melissa Bauman  
Kristin Leuschner  
Mary Vaiana  
**Communications Analysts**

Susan Hosek  
**RAND Study Co-Director**

### Section One: Introduction

Peter Hussey  
Sarah MacCarthy  
Katherine Watkins

### Section Two: Methods

Sangeeta Ahluwalia  
James Broyles  
Christine Buttorff  
Thomas Concannon

Susan Lovejoy  
Grant Martsolf  
Rebecca Anhang Price  
Robert Rudin

Dana Schultz  
Elizabeth Sloss  
Katherine Watkins  
Daniel Waxman

### Section Three: Assessment of VA Capabilities and Resources

#### Fiscal Resources

Christine Buttorff\*  
Paul Ginsburg

#### Workforce & Human Resources

Grant Martsolf\*  
Christine Buttorff

Paul Ginsburg  
Ryan Kandrack

Linnea Warren May  
Ashley Muchow

#### Physical Infrastructure

Thomas Concannon\*  
Liisa Ecola

Sam Hirshman  
Sean Mann

Lisa Miyashiro  
Joseph Vesely

#### Interorganizational Relations

Susan Lovejoy\*  
Francesca Pillemer

## Assessment B (Health Care Capabilities)

---

### Information Technology Resources

Robert Rudin*	Carlos Gutierrez	Zachary Predmore
Shira Fischer	Lori Uscher-Pines	Daniel Waxman

### Section Four: Assessment of Access to VA Care

Thomas Concannon*	Ryan Kandrack	Lisa Miyashiro
Rebecca Anhang Price*	Amii Kress	Jason Nelson
Elizabeth Sloss*	Sarah MacCarthy	Diana Naranjo
Brian Briscoe	Ervant Maksabedian	Francesca Pillemer
Christine Buttorff	Sean Mann	Rachel Ross
Amy DeSantis	Grant Martsolf	Teague Ruder
Shira Fischer	Nishtha Mishra	Joseph Vesely

### Section Five: Assessment of Quality of VA Care

Rebecca Anhang Price*	Courtney Gidengil	Claire O'Hanlon
Elizabeth Sloss*	Christina Huang	

### Section Six: Improving Access to VA Care

Sangeeta Ahluwalia*	Timothy Gulden	Luke Mathews
James Broyles*	Sam Hirshman	Katherine Watkins
Paul Ginsburg	Sarah MacCarthy	

### Section Seven: Conclusions and Recommendations

Peter Hussey  
Jeanne Ringel

### Appendix B and I (Survey)

Amii Kress*	Rachel Burns	Mark Friedberg
Katherine Watkins*	Christine Buttorff	Luke Mathews
Daniel Waxman*	Shira Fischer	Carolyn Rutter

### Appendix E (Summary of Qualitative Interview Results)

Dana Schultz*	Liisa Ecola	Rachel Ross
Sangeeta Ahluwalia	Sarah MacCarthy	Lori Uscher-Pines
Emily Chen	Linnea May	
Amy DeSantis	Francesca Pillemer	

\*Denotes task leader

## Preface

Congress enacted and President Obama signed into law the Veterans Access, Choice, and Accountability Act of 2014 (Public Law 113-146) (“Veterans Choice Act”), as amended by the Department of Veterans Affairs (VA) Expiring Authorities Act of 2014 (Public Law 113-175), to improve access to timely, high-quality health care for Veterans. Under “Title II – Health Care Administrative Matters,” Section 201 calls for an Independent Assessment of 12 areas of VA’s health care delivery systems and management processes.

VA engaged the Institute of Medicine of the National Academies to prepare an assessment of access standards and engaged the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH)<sup>1</sup> to serve as the program integrator and as primary developer of the remaining 11 Veterans Choice Act independent assessments. CAMH subcontracted with Grant Thornton, McKinsey & Company, and the RAND Corporation to conduct 10 independent assessments as specified in Section 201, with MITRE conducting the 11th assessment. Drawing on the results of the 12 assessments, CAMH also produced the Integrated Report in this volume, which contains key findings and recommendations. CAMH is furnishing the complete set of reports to the Secretary of Veterans Affairs, the Committee on Veterans’ Affairs of the Senate, the Committee on Veterans’ Affairs of the House of Representatives, and the Commission on Care.

The research addressed in this report was conducted by the RAND Corporation, under a subcontract with The MITRE Corporation.

---

<sup>1</sup> The CMS Alliance to Modernize Healthcare (CAMH), sponsored by the Centers for Medicare & Medicaid Services (CMS), is a federally funded research and development center (FFRDC) operated by The MITRE Corporation, a not-for-profit company chartered to work in the public interest. For additional information, see the CMS Alliance to Modernize Healthcare (CAMH) website (<http://www.mitre.org/centers/cms-alliances-to-modernize-healthcare/who-we-are/the-camh-difference>).

This page intentionally left blank.

## Acknowledgments

We gratefully acknowledge Aziza Arifkhanova, Benjamin Batorsky, Nazleen Bharmal, Brett Ewing, Jennifer Hawes-Dawson, Liisa Hiatt, Emily Hoch, Jody Larkin, Nelly Mejia, Aneesa Motala, Diana Naranjo, Cordaye Ogletree, Angela Sicker, Clare Stevens, Yan Wang, Lea Xenakis, and Cate Yoon for their research support; Chris Chan, Mike Cui, Marian Oshiro, and Dulani Woods for their programming and data management support; and Matt Cefalu and Marc Elliot for their statistical support. We are grateful for the support and guidance from the project's management team, including Robin Weinick and Terri Tanielian, and the strong organizational support from Clare Stevens. We appreciate the comments provided by our reviewers, Ross Anthony, Daniel Ginsberg, Sherry Glied, Kenneth Kizer, Bernie Rostker, and Chapin White. We addressed their constructive critiques, as part of RAND's rigorous quality assurance process, to improve the quality of this report. We are grateful to Meg Harrell for coordinating the quality assurance process for this project. We acknowledge the administrative support and assistance of Tiffany Hruby, Stacey Gallaway, Jamie Greenberg, James Henderson, Barbara Hennessey, Patricia McGarry, Fawna Smith, Shawna Beck-Sullivan, Kaci Williams, and Kendra Wilsher in the preparation of this report. We also acknowledge the support of our MITRE colleague, Sandy Sinay, and her team. We are grateful to the individuals at the Department of Veterans Affairs who we interviewed for their time and to those who prepared data for our analysis, and we appreciate the helpful assistance of individuals at the Health Analysis & Information Group.

This page intentionally left blank.



## Executive Summary

Access to quality health care is a central part of our nation's commitment to Veterans. In February 2014, a recently retired Department of Veterans Affairs (VA) physician alleged that at least 40 Veterans died while waiting for care at the Phoenix VA Health Care System. While the allegations of deaths were not proven, this raised concerns about how effectively the commitment to Veterans was being fulfilled (VA, Office of Inspector General, 2014). Following the Phoenix allegations, the VA Office of Inspector General investigated the timeliness of VA health care, finding that some VA staff regularly entered false information regarding patients' preferred dates of care to minimize reported wait times between the preferred date and the actual date of appointments. The Inspector General also pointed to systemic issues within VA that may limit Veterans' access to care, including lack of available appointments within certain clinical specialties and problems with care transitions for patients discharged from mental health services.

The accessibility and timeliness of care are longstanding areas of concern within VA. VA has many ongoing programs and initiatives to increase access to care for Veterans, including, most recently, the Veterans Choice Act, passed in 2014. The Veterans Choice Program expanded VA authority to furnish care to Veterans through agreements with non-VA providers as well as provisions regarding improved access to telemedicine through mobile medical centers; 27 new major medical facility leases; increased transparency of performance data on VA providers, including wait times; new residency and other training and education programs; and recruitment and appointment of personnel in occupations identified by the VA Inspector General as having the greatest shortages. The law includes appropriations for VA to support these activities.

Section 201 of the Veterans Choice Act included a requirement for 12 independent assessments of VA health care. This report addresses Assessment B (identified under Title II – Health Care Administrative Matters, Section 201 of the Veterans Choice Act). The assessment responds to language in the Veterans Choice Act of 2014, Title II – Health Care Administrative Matters, Section 201.A.1.b, which mandates an independent assessment of “current and projected health care capabilities and resources of the Department [VA], including hospital care, medical services, and other health care furnished by non-Department facilities under contract with the Department, to provide timely and accessible care to veterans” (Veterans Choice Act, Section 201).

## Study Purpose and Approach

Assessment B assesses VA's current and projected resources and capabilities, the level and nature of access to VA care, and barriers and facilitators to access. We explore how selected policies could affect Veterans' access to high-quality care. Specifically, we address the following research questions:

1. What are VA's current resources and capabilities in key domains?
2. What are current levels of access to VA care?

3. What is the quality of care in VA?
4. What are VA's projected resources and capabilities to provide timely and accessible care, and how might different policy options enhance VA's resources and capabilities for treating Veterans in the future?

We answered these questions broadly and also identified seven illustrative clinical populations to provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans.

The Assessment B team used a multipronged approach to address these research questions. We examined VA's resources and capabilities in five domains (fiscal, workforce and human resources, physical infrastructure, interorganizational relationships, and information technology [IT]). To understand access, we examined available data on five dimensions of access to VA health care: geographic, timely, financial, digital, and cultural. We assessed the quality of VA health care in comparison with non-VA care as measured in previous studies and by analyzing more recent VA performance data, using the six dimensions of health care quality identified by the Institute of Medicine: Care should be safe, timely, equitable, effective, efficient, and patient-centered (Institute of Medicine, 2001).

We also developed a method for projecting future resources, which we compared with forecasted changes in patient demand for VA health care in order to identify potential gaps. To support analyses of future options for VA to address identified gaps, we identified and analyzed a reasonable range of feasible policy options to enhance VA's ability to provide timely and accessible care to Veterans. These analyses were informed by data collected through literature reviews, key informant interviews, a 2015 Survey of VA Resources and Capabilities, and other VA and non-VA data sources.

## Findings

### Assessment of VA Resources and Capabilities

VA operates a unique health care system with broad and deep resources and capabilities for Veterans, including facilities, personnel, and IT infrastructure. However, our assessment identified a number of barriers to the effective planning for and use of these resources and capabilities, which can affect their availability to Veterans.

**VA faces a number of challenges in planning for and using its fiscal resources effectively.** The total VA budget for fiscal year (FY) 2015 is approximately \$60 billion, rising to \$63 billion for the advanced FY 2016 appropriation. We were not able to determine whether VA has adequate fiscal resources for health care, because there is no valid benchmark against which to compare VA's budget and spending. We did find, however, a number of issues related to VA's budget process, including concerns about the data used for budget planning, inflexibility in budgeting stemming from the congressional appropriation processes, and challenges in VA's allocation processes. VA develops its health care budget from older data, and there can be problems with the assumptions used in this process. In addition, congressional priorities can affect VA's appropriation, and the impact of increases in purchased care from the Veterans Choice Act on

the budget in future years is currently unknown. In interviews, facility directors described problems with the allocation system to the Veterans integrated service networks (VISNs), including the use of past data in calculating the allocation and the fact that some facilities undertake various activities to ensure that their allocation is as high as possible in subsequent years. These challenges can leave facilities that are experiencing change over- or underfunded in the current year, and they create incentives for facilities to see more of certain types of patients in order to increase funding in future years. There are also continued challenges with the separate budgets for medical care, capital construction, and IT that do not move in concert and can limit facilities' ability to improve access.

**VA has an extensive health care workforce but faces challenges in workforce planning and assessment.** As one of the largest providers of health services in the world, VA employs physicians, nurses, other providers, and a range of support staff to provide care directly to Veterans. VA also contracts with private physicians to deliver some services within VA facilities (GAO, 2013b). In FY 2014, VA employed a total of 31,269 physician employees working either full-time or part-time, for a total of 19,900 FTEs. On average, these physicians spend close to 80 percent of their FTEs in clinical care, for a total of 15,543 physician clinical FTEs across all specialties. We identified several challenges associated with VA workforce planning and assessment processes. These include a lack of guidance about what methods should be used, a lack of external productivity benchmarks, inaccurate or incomplete data inputs, and the inability of the data system to adequately account for certain types of providers and patient visits.

**VA workforce capacity may not be sufficient to provide timely care to Veterans across a number of key specialties as well as primary care.** VA faces shortages of physicians in some geographic areas and of certain physician specialists more generally. These constraints are influenced by a number of key factors, including relatively low salaries, a slow credentialing process, and infrastructure constraints. We found significant variation across facilities and VISNs in terms of productivity. Our estimates must be considered, however, in light of concerns about coding and data quality. In particular, interviewees reported that variations in coding practices, inconsistently entered workload data, and incomplete or poorly detailed physician encounter data make it difficult to consistently measure productivity.

**VA operates one of the most extensive systems of health care infrastructure in the country, but the need for additional physical space is a limiting factor in improving access.** Of 955 sites, 871 are medical facilities; the remaining sites, considered nonmedical facilities, generally provide outpatient services or residential treatment. On average, the VA system has 18.3 hospital beds per 10,000 enrollees and an inpatient daily census of 11 patients per 10,000 enrollees, for an occupancy rate of 60 percent; however, hospital bed supply varies widely across VISNs. Interviewees in leadership or clinical care positions were generally satisfied with VA medical equipment and supplies, but they noted that physical space was in short supply and that even new facilities can quickly grow out of date. The need for more effective use of existing space was also identified as a key limiting factor in improving access for Veterans.

**VA has many outside options for providing care to Veterans, although managing this resource can be challenging.** Care is provided to VA enrollees by non-VA entities through several

programs and various types of payment or contractual arrangements, including the “traditional program,” partnership agreements, the Access Received Closer to Home (ARCH) program, the Patient Centered Community Care (PC3) program, and the Veterans Choice Program. Spending for purchased care has grown dramatically—reaching about \$7 billion in 2014—and the Veterans Choice Act provides new funding of \$10 billion over three years. However, managing this complex resource has proven challenging. Contracting with non-VA providers has been described as a “long and painful” process, and there are well-documented problems with VA’s claims processing system. As VA was attempting to address some of the administrative challenges associated with arranging, coordinating, and reimbursing purchased care through the implementation of the PC3 program, for example, the addition of the Veterans Choice program further complicated the situation and resulted in confusion among Veterans, VA employees, and non-VA providers. VA and members of Congress have expressed a desire to more effectively utilize this important resource as demand increases.

**VA has been and continues to be an innovator and leader in developing health IT capabilities, although there is room for improvement in some areas.** VA is on par with or exceeds other organizations’ capability to use IT in care delivery in many regards, including telehealth and MyHealtheVet, VA’s online patient portal. However, VA’s role as an innovator and leader has been challenged by issues related to the management and planning of its IT systems. For every IT capability we studied, we found clear barriers—including inadequate infrastructure, lack of facility leadership and provider buy-in, and administrative burden—to allowing Veterans to take further advantage of what IT can offer.

Our findings also confirm the results of previous studies concerning strengths and weaknesses in VA’s current electronic health record technologies (VistA, that is, Veterans Health Information Systems and Technology Architecture, and VA’s Computerized Patient Record System [CPRS]), which suffer from an aging architecture and 10 years of limited development. However, interviews across the spectrum of VA personnel—from management and IT thought leaders to end users—suggest strong support for renewed investment in a modern, home-grown product rather than transitioning to a commercial off-the-shelf alternative. The advantages, disadvantages, and tradeoffs between homegrown versus commercial electronic health record software are discussed in Assessment H.

Taken together, these barriers present a formidable, though not insurmountable, challenge to ensuring that sufficient VA resources and capabilities are available to all Veterans. Addressing these barriers will require a mix of short- and long-term initiatives, as we describe later in the Recommendations section.

### Assessment of Access to VA Care

Ensuring Veterans’ access to health care depends not just on the level of resources and capabilities available, but on how well VA’s health care system addresses Veterans’ needs. While our assessment did not find evidence of a system-wide crisis in access to VA care, we found considerable variability across the different dimensions of access (geographic, timely, financial, digital, and cultural) as well as opportunities to improve access, even at the top-performing VA facilities.

**Veterans’ geographic access to VA care varies according to the access standard used and by region and type of service.** Many Veterans have geographic access to VA care, although it varies when using different access standards (that is, 40-mile straight-line distance, 40-mile driving distance, 60-minute driving time in free-flow traffic or rush hour traffic, 60-minute public transit time) and by region. Enrollees’ average driving time to the nearest VA medical center (VAMC) or hospital is less, on average, than enrollees’ average reported willingness to travel for routine medical care or Medicare beneficiaries’ observed average travel times. Veterans who must rely on public transportation have much less access than other Veterans. Further, our assessment found that substantially lower proportions of enrollees have geographic access to advanced and specialized services in VA medical facilities. For example, only 43 percent of enrollees live within 40 miles of VA interventional cardiology services, and only 55 percent of enrollees live within 40 miles of VA oncology services.

**Veterans who live far from a VA medical facility have good geographic access to non-VA community hospitals, emergency care, and primary care physicians, but poor access to hospitals and physicians offering specialized services.** Nearly all Veterans (96 percent) who live far from VA medical facilities can drive to community and emergency care at non-VA hospitals within 40 miles, but access to more advanced care at academic and teaching hospitals is much lower: Only 15 percent live within 40 miles of a teaching hospital, and only 3 percent live within 40 miles of an academic hospital. These Veterans are also less likely to have geographic access to a range of highly specialized care at non-VA hospitals, including many cardiology, surgery, and oncology services. The same is true for access to non-VA clinicians in the community. A large share of VA enrollees living far from a VA medical facility are within 40 miles of primary care providers, but far fewer of these enrollees are near providers offering highly specialized care. This finding suggests that expanding access to non-VA providers in these regions can help most Veterans seeking routine and emergency care, but will help far fewer Veterans who need access to advanced and specialized care.

**Most VA appointments meet VA timeliness standards; however, there is variation in timeliness across the VA system, with poor performance for some VA facilities.** Most Veterans complete their appointments within VA timeliness standards of 30 days of the preferred date—that is, the date recommended by the physician or that the Veteran prefers. However, some Veterans who do not receive care within 30 days may be at risk of poor health outcomes. The average number of days that Veterans wait for appointments varies tremendously across VA facilities, indicating substantial opportunities for improvement in some facilities. At 91 top-performing VA facilities, over 96 percent of new primary care patients receive appointments within 30 days of the preferred date. However, 14 VA facilities were far below this benchmark, with less than 84 percent of patients receiving appointments within 30 days of the preferred date. At the top-performing VA facilities, more than 60 percent of Veterans report that they “always got urgent care appointments as soon as needed.” At the worst-performing VA facility, this rate was closer to 20 percent. Even at the facilities with the shortest wait times, many Veterans report that they do not always get an appointment as soon as needed, suggesting that even these top-performing facilities do not meet many Veterans’ expectations for timely appointments.

**Reported wait times for VA care are getting longer.** The percentage of appointments completed within 30 days of the preferred date was lower in the first half of FY 2015 than in the first half of FY 2014. Reported declines over this period likely reflect both actual lengthening of wait times—as might be expected, given the increased demand for VA services predicted by VA’s Enrollee Health Care Projection Model (EHCPM)—and improvements in the accuracy of the wait-time data.

**VA’s timeliness standard is much less demanding than alternative standards that have been proposed in the private sector.** The standard is also sensitive to the definition of the “preferred date,” which has been subject to gaming. For example, the VA Inspector General found that VA staff regularly entered false information regarding preferred dates of care. Therefore, many have questioned whether the VA data and standard provide a valid reference for timeliness of appointments. While it was outside the scope of this assessment to validate these data, we examined whether alternative standards for timeliness could be applied. Alternative standards, such as those that assess the availability rather than completion of appointments, may be less subject to gaming and more comparable to private-sector standards. It is unclear how many VA facilities or non-VA providers meet these alternative standards. We found limited data available to compare VA and non-VA waits for care, but VA wait times do not seem to be substantially worse than non-VA waits, based on the limited available evidence.

**On patient surveys, Veterans are substantially less likely than private-sector patients to report getting appointments, care, and information as soon as needed.** The top-performing VA facilities scored comparably or worse than average practices in the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Database, which includes a voluntarily participating set of private-sector medical practices and likely overrepresents high-performing practices. VA facilities at the 75th percentile of VA performance scored substantially worse than average CAHPS Database practices.

**VA care is considered to be relatively affordable, and demand for VA care may increase if the cost of health care increases.** VA is often Veterans’ most affordable option for health care coverage. Veterans typically face lower out-of-pocket costs for care in VA than they would if they were privately insured. VA health care workers noted that lack of an affordable private insurance option is a key reason why Veterans enroll in VA. Twenty-eight percent of Veterans responding to the 2014 Survey of Enrollees indicated that their use of VA care would decrease if their financial resources improved. This suggests that, for a substantial minority of Veterans, non-VA care is preferred if available. In interviews, VA administrators and representatives of Veteran Service Organizations noted that Veterans generally like to get their care from VA, but that some Veterans with affordable non-VA care options seek care elsewhere rather than dealing with challenges associated with determining eligibility for services, perceived longer wait times, inconvenience of scheduling processes, and less than state-of-the-art equipment and facilities within VA.

**Many Veterans, especially older Veterans, lack Internet access, but the acceptability of digital care is likely to grow as younger Veterans age.** Thirty percent of Veterans, especially older Veterans, do not have access to the Internet and therefore cannot access VA’s digital services, such as the MyHealtheVet patient portal or telehealth (2013 Survey of Enrollees). As younger

Veterans age, Internet access and technological skill are likely to grow more common among Veterans, thereby increasing the acceptability and accessibility of digital health care services.

**More could be done to increase VA providers' awareness of the changing demographics among Veterans.** For example, increased attention to the needs of female Veterans has enabled broad access to basic reproductive health services; however, access to more advanced services is variable by location, and VA health care workers noted that additional steps could be taken by providers to ensure that female Veterans feel respected while receiving care in VA facilities.

Some variation in performance across regions and VA facilities may be inevitable because of differences in patient characteristics. In addition, some localized strategies for improvement may not scale up well because of contextual factors. However, these findings point to opportunities to improve Veteran access to VA care along several dimensions as well as the need to consider alternative standards for measuring access to care.

### Assessment of Quality of VA Care

Access to care is only beneficial if high-quality care is provided. VA has long played a national leadership role in the quality measurement arena. The assessment showed that VA health care quality was good overall on many measures and domains compared with non-VA comparators. However, as with access to care, quality performance was uneven across VA facilities, with many opportunities for improvement.

**The findings of previous studies of quality of care provided in VA settings compared with non-VA settings vary by quality domain.** Studies of safety and effectiveness indicated mixed performance, with 22 of 34 studies of safety and 20 of 24 studies of effectiveness showing that quality of care was the same or better in VA facilities. Only five articles assessed patient-centeredness, but all demonstrated better or same VA care quality compared with care in non-VA settings. Four articles assessed equity in VA settings, with one showing better performance, two showing same performance, and one showing worse performance compared with non-VA settings. The nine articles evaluating measures of efficiency, such as hospital length of stay, demonstrated mostly mixed or worse performance in VA facilities compared with non-VA facilities, although two studies showed better performance. Only one study assessed timeliness of care in VA facilities, and it showed worse performance than the non-VA facilities.

**There is substantial variation in quality measure performance across VA facilities, indicating that Veterans in some areas are not receiving the same high-quality care that other VA facilities are able to provide.** For example, there was a 21-percentage-point difference in FY 2014 performance between the lowest- and highest-performing VA facilities on the rate of eye exams in the outpatient setting for patients with diabetes. Although this variation is lower than that observed in private-sector health plans, a high-priority goal for VA leadership should be narrowing these gaps to ensure that quality of care is more uniform across VA facilities so that Veterans can count on high-quality care no matter which facility they access.

**VA outpatient care outperformed non-VA outpatient care on almost all quality measures. VA hospitals performed the same or better than non-VA hospitals on most inpatient quality**

**measures, but worse on others.** VA performed significantly better, on average, on almost all 16 outpatient measures when compared with commercial, Medicare, and Medicaid HMOs. On average, VA hospitals performed the same or significantly better than non-VA hospitals on 12 inpatient effectiveness measures, all six measures of inpatient safety, and three inpatient mortality measures, but significantly worse than non-VA hospitals on two effectiveness measures and three readmission measures.

**On most measures, Veteran-reported experiences of care in VA hospitals were worse than patient-reported experiences in non-VA hospitals.** Average VA facility-level performance was significantly worse than non-VA facilities for six of ten patient experience measures, including communication with nurses and doctors.

**VA uses many systems for monitoring quality.** VA currently uses multiple quality monitoring systems—tailored for different care settings and audiences—to collect and report information about the health of Veterans and the care provided to them. Among these systems is ASPIRE, which is part of the VA Transparency Program, which offers publicly available information on the VA Hospital Compare website about how VA is performing relative to other health care organizations across the country. ASPIRE presents information about all aspects of quality, including preventive care, care recommended for acute and chronic conditions, complications and outcomes of care, and patient-reported measures of health care experiences at the national, regional, and local levels of the VA system. In addition to ASPIRE, VA has more than 500 other quality measures that can be used to monitor quality of care regionally and locally and to inform quality improvement projects.

**There were mixed opinions on the impact of VA’s many quality measures.** In interviews, VA administrators and several health care workers noted that attention to quality measurement has led to positive changes in care delivery, for example, by using quality data to identify high-risk patients for more-intensive case management or to initiate patient education in response to high readmission rates. However, several respondents felt that measuring quality did not always have a positive effect on how facilities deliver care. Some noted that the current list of access and quality measures is “just too long” and the measurement process is a burden for VA providers and other staff members.

This level of variation in performance across VA facilities suggests that significant opportunities exist to improve access to care in VA through systematic performance improvement. These findings suggest that a systematic effort is needed to identify and eliminate unwarranted variation, and to develop and encourage the use of best practices to improve performance across the VA system.

### Improving Access for Veterans

Looking to the future, the size, demographics, and health needs of the Veteran population, as described by Assessment A, will change. VA will need to adjust its resources and capabilities to meet the changing demand for services among Veterans. VA combines its resources and capabilities to generate the supply of health care services available to enrollees. Access to care, particularly the timeliness of care, is determined in large part by whether the overall level and geographic distribution of supply is well aligned with Veterans’ needs. To provide insight into



potential challenges to ensuring timely access, we compared projected supply with projected demand in FY 2019 under several scenarios, including (1) an increase in the number of VA providers but no change in productivity; (2) an increase in productivity with no change in the amount of resources; and (3) changes in both resources and productivity.

**VA forecasts an increase in demand for VA care by FY 2019.** VA's EHCPM forecasts a 19-percent increase in demand for VA health care services nationally from FY 2014 to FY 2019, due to a projected 5.1-percent increase in enrollment and the aging of enrollees. Although the forecast assumes that the number of Veterans will decrease, a growing proportion of Veterans are enrolling in VA health care (Milliman Inc., 2014), and the EHCPM model includes an assumption that this trend will continue through FY 2019. While the EHCPM is used by VA for planning purposes, it is possible that its predictions of increased demand for VA health care services will be inaccurate. Estimates from Assessment A suggest that the number of patients using VA health care services is expected to increase through 2019, then decrease thereafter.

**Assuming that the EHCPM demand forecast is accurate, VA will face challenges in meeting demand under current provider growth trends.** Given the caveats noted above, our projections under our first supply scenario (increase in the number of providers) indicate that, if the supply of VA providers continues to increase at historical growth rates, and other resources grow in proportion so that providers continue to deliver a similar amount of health care (that is, no increase in productivity), it will be more difficult for VA to meet the demand for services and provide adequate access to Veterans in FY 2019. These challenges will be more acute in some regions and at some VA facilities than others, so considerations of distribution will be as important as consideration of levels.

**Substantial increases in the productivity of existing resources will be needed to meet projected demand.** Our second supply projection considers the effect of increasing productivity of each specialty in each administrative parent to benchmark levels—25th, 50th, or 75th percentile of the FY 2014 productivity distribution. Our projections indicate that, if productivity were increased to at least at the 75th percentile for each specialty at each administrative parent, VA would be able to produce enough health care services to meet projected demand. However, such a large increase in productivity would likely be very difficult to achieve.

**If both the number and productivity of resources are increased, VA can produce enough supply to meet projected demand.** The third supply projection considers the effect of combining increases in the number of providers and the productivity of resources. We found that, if historical hiring trends were to continue and productivity were raised to the 25th percentile of the FY 2014 distribution, the supply produced in FY 2019 would exceed the projected demand. While the overall level of supply is sufficient to provide timely access to care, there are some VISNs in which demand is expected to exceed supply. As such, Veterans in some regions could experience access problems, indicating a need to redistribute supply across geographic areas to meet all enrollees' health care needs.

**Changes in policy can help ensure Veterans' continued access to VA care.** Comparing options with a policy objective of increasing Veterans' access to care within the VA system, we found that, of the options we considered, the three with the highest estimated impact on access are formalizing full nursing practice authority, increasing the number of VA physicians, and

expanding virtual access to care. None of these options are mutually exclusive; they could be combined in a number of different ways. Each of these options has different potential barriers that present tradeoffs. The primary barrier to formalizing full nursing practice authority is political (key stakeholder opposition); the barriers to hiring physicians are related to cost and administrative challenges associated with the hiring process; and the primary barrier to expanding virtual access to care is cost.

Options with a policy objective of increasing access outside VA system have considerable uncertainty related to potential impact on access. Greater collaboration with and reliance on private-sector health care organizations to enhance VA capacity to provide timely access to care will be crucial to the success of these options. One option—consolidating existing purchased care programs—has the most certain impact. The current system of overlapping programs was widely cited as problematic and does not have any clear benefits. This option is discussed in greater detail in Assessment C.

**The impact and feasibility of increasing non-VA resources available for Veterans’ health care would be highly dependent on the scope of the change.** Shifting certain types of services from VA to purchased care could potentially improve both access and quality of care, but doing so could also increase challenges in care coordination. Shifting a greater share of services from VA to purchased care would require more fundamental changes to VA. The TRICARE program could serve as a model for an option to restructure VA as a purchaser rather than provider of health care, and, indeed, its relative success within DoD highlights the potential of such an option. However, our analyses indicate that many Veterans without access to VA health care also face significant barriers to accessing purchased care, including distance and cultural barriers. Thus, the option to transform VA from a provider to a purchaser of health care would not necessarily have a significant positive impact on access.

## Conclusions

The assessment highlights many opportunities to improve VA capabilities to provide timely and accessible care. We identified a large number of barriers to effective use of VA resources. We also found widespread variation in performance across VA facilities. We did not find evidence of a system-wide crisis in current access to VA care. However, our projections indicate that, without changes, it will be increasingly difficult for VA to provide good access to care for our nation’s Veterans.

This assessment has several important limitations, a number of which stem from the fact that the assessment was conducted over a very short time frame. The lack of direct input from Veterans is key. To address this limitation, we conducted analyses of secondary data sources that included Veterans’ perspectives, as well as interviews with representatives of Veterans Service Organizations. Another limitation is that the projections of future resources are based solely on provider and productivity data and do not directly include changes in other key resources, such as physical space, equipment, and IT. Moreover, our projection analysis does not account for changes in demand that might occur if supply, and thus access, was increased. A projection model that included all resources and the interactions between them (for example, system dynamics) was beyond the scope of this assessment. Differences between VA and other

health care organizations, in terms of both the organization of the delivery system and the patient population, limit the value of comparisons between VA and non-VA health care organizations. Therefore, in most cases, we used qualitative data from interviews and literature reviews to assess the adequacy of VA's resources and capabilities.

### Recommendations for Consideration

Based on the findings of Assessment B, we make several recommendations to improve access to care for Veterans.

**VA should use a systematic, continuous performance improvement process to improve access to care.** Although many VA facilities achieve very high levels of performance on key access and quality measures, there is also a great deal of variation across the system. A systematic effort is needed to identify unwarranted variation, identify and develop best practices to improve performance, and embed these practices into routine use across the VA system. Some of the best solutions may be developed locally to reflect local needs and contexts. Solutions should be designed to be responsive to Veterans' preferences, needs, and values.

**VA should consider alternative standards of timely access to care.** Timeliness standards should be reexamined. VA should examine the utility of existing alternative benchmarks, such as same-day availability of the third next available appointment. Access standards for other dimensions, such as cultural access, should also be developed and used in performance monitoring and improvement. VA should develop methods to routinely compare the timeliness of VA care with non-VA benchmarks and publish these comparisons for transparency.

**VA and Congress should develop and implement more sensitive standards of geographic access to care.** VA should compare the "one-size-fits-all" approach of driving distance to alternative standards that are more sensitive to differences between Veteran subgroups, clinical populations, geographic regions, and individual facilities. This assessment highlighted the importance of time spent driving, mode of transportation, traffic, and availability of needed services as key considerations in assessing geographic access to care.

**VA should focus efforts to increase Veterans Choice Program utilization in areas with the lowest rates of geographic access to VA facilities.** These areas can be identified in geographic assessments that consider locations of facilities relative to enrollee populations, along with estimates of access to more complex and specialized service offerings in VA facilities.

**VA should continue moving toward using a smaller number of quality metrics in quality measurement and improvement activities.** VA maintains an extensive set of quality measures. Although use of these measures has led to improvements in care, the proliferation of measures creates burdens on staff and resources and can lead to emphasis on the measures rather than improvement in areas of care that are more likely to improve patient outcomes. VA has already

moved toward reporting systems that rely on a smaller number of measures, such as Strategic Analytics for Improvement and Learning (SAIL).<sup>2</sup>

**VA should take significant steps to improve access to VA care.** Our projections indicate that increases in both resources and the productivity of resources will be necessary to meet increases in demand for health care over the next five years. The options we considered that have the highest estimated potential impact are formalizing full nursing practice authority, increasing physician hiring, and increasing the use of virtual care. These are commonly proposed options for increasing access to VA care. In addition, new models of health care delivery are emerging rapidly in the U.S. health care system that could improve access to care. VA should seek to be an early adopter of these new models and should build a strategy that enables and supports such innovation.

**VA should establish itself as a leader and innovator in health care redesign.** Our assessment found that VA has historically been on the leading edge in several important areas, such as development and use of health IT. It is also on the forefront on many other innovative delivery methods, such as team-based primary care. As a large integrated delivery system, VA is well placed to innovate in comparison with many other U.S. health care delivery systems. It should endeavor to maximize this opportunity, given the constraints associated with being a public entity (for example, hiring processes, salaries, budgeting). VA should also endeavor to learn from current leaders in areas where its leadership position has eroded, particularly in health IT, and seek to reestablish its leading position.

**VA should streamline its programs for providing access to purchased care and use them strategically to maximize access.** Currently available programs are overlapping and confusing to Veterans and VA employees as well as non-VA providers. VA should clearly identify the objectives of purchased care access and streamline programs to meet those objectives.

**VA should systematically identify opportunities to improve access to high-quality care through use of purchased care.** Some types of care may be more effectively and efficiently delivered by non-VA providers. Identification of these types of care and the impact of shifting care to non-VA providers requires an in-depth systematic analysis that was beyond the scope of this assessment.

These recommendations would help VA improve Veterans' access to care across the VA system and ensure that future demand for VA care can be met. Although this assessment did not find a system-wide crisis in access to VA care, it did identify a high degree of variability in performance across VA facilities, a number of barriers to effective use of VA resources and capabilities, and likely future challenges. These recommendations should be implemented and progress regularly evaluated to ensure continuous improvement in performance. Such improvement will be needed to ensure that we meet our nation's commitment to care for Veterans.

---

<sup>2</sup> Although SAIL uses fewer measures to simplify reporting, they are composite measures which still incorporate numerous individual performance measures.

## Table of Contents

<b>Executive Summary .....</b>	<b>ix</b>
Study Purpose and Approach .....	ix
Findings .....	x
Conclusions .....	xviii
Recommendations for Consideration .....	xix
<b>1 Introduction .....</b>	<b>1</b>
1.1 Background .....	1
1.2 Objectives.....	2
1.3 Scope.....	2
1.4 Definitions of Key Concepts .....	3
1.5 Improving Access for Veterans .....	7
1.6 Organization of Report .....	7
<b>2 Overview of Methods .....</b>	<b>9</b>
2.1 Introduction .....	9
2.2 Illustrative Clinical Populations.....	10
2.3 Literature Reviews .....	12
2.4 Interviews.....	17
2.5 2015 Survey of VA Resources and Capabilities.....	21
2.6 Data Sources and Measures .....	21
2.7 Data Analyses.....	27
2.8 Policy Analysis .....	36
2.9 Section Conclusion .....	38
<b>3 Assessment of VA Resources and Capabilities .....</b>	<b>41</b>
3.1 Fiscal Resources .....	42
3.2 Workforce and Human Resources .....	63
3.3 Physical Infrastructure .....	98
3.4 Interorganizational Relationships.....	112
3.5 IT Resources .....	128
3.6 Section Conclusion .....	156
<b>4 Assessment of Access to VA Care .....</b>	<b>157</b>
4.1 Geographic Access .....	158
4.2 Timeliness .....	187
4.3 Financial Access .....	200
4.4 Digital Access .....	203
4.5 Cultural Access .....	204
4.6 Section Conclusion .....	205
<b>5 Assessment of Quality of VA Care .....</b>	<b>207</b>

## Assessment B (Health Care Capabilities)

---

5.1	Evidence from Previous Studies of Quality of VA Care.....	208
5.2	VA Measurement of Quality of Care.....	215
5.3	Section Conclusion .....	238
<b>6</b>	<b>Improving Access for Veterans .....</b>	<b>239</b>
6.1	Approaches to Improving Access.....	239
6.2	Projections of the Impact of Different Approaches to Improving Access .....	240
6.3	Overview of Selected Policy Options to Improve Access for Veterans .....	255
6.4	Selected Policy Options to Enhance Access Within VA .....	258
6.5	Selected Policy Options to Enhance Access Outside VA.....	279
6.6	Comparison of Policy Options.....	287
6.7	Section Conclusion .....	289
<b>7</b>	<b>Conclusions and Recommendations .....</b>	<b>291</b>
7.1	Summary of Assessment Findings .....	291
7.2	Limitations of the Assessment.....	295
7.3	Recommendations .....	297
7.4	Conclusions .....	298
<b>Appendix A</b>	<b>Methods .....</b>	<b>A-1</b>
<b>Appendix B</b>	<b>Survey.....</b>	<b>B-1</b>
<b>Appendix C</b>	<b>References .....</b>	<b>C-1</b>
<b>Appendix D</b>	<b>Acronyms.....</b>	<b>D-1</b>

## List of Figures

Figure 3.2-1. VA Clinical FTEs per 1,000 Unique Patients by VISN for Select Specialties, FY 2014 .....	72
Figure 3.2-2. VA Work RVUs Per Physician for Select Specialties at the VISN Level, FY 2014.....	79
Figure 3.3-1. Locations of VA Medical Facilities and the Veteran Population Density .....	102
Figure 3.4-1. VA Purchased Care Programs and Partnerships.....	114
Figure 3.4-2. Number of VA and Purchased Care Program Outpatient Visits, 2011–2014.....	116
Figure 3.4-3. Number of Unique Veterans Who Received Purchased Care, 2008–2014 .....	118
Figure 3.4-4. Hierarchy for Referrals to VA Purchased Care Programs .....	125
Figure 3.5-1. Percentage of Veterans Using Telehealth Modalities by VISN, FY 2014 .....	135
Figure 4-1. Enrollees’ Geographic Access to VA Medical Facilities: 40-Mile Driving Distance .....	161
Figure 4-2. Four Geographic Access Standards in Pittsburgh.....	162
Figure 4-3. Four Geographic Access Standards in Southern California .....	163
Figure 4-4. Geographic Access to VA Facilities, by Type of Facility and Standard .....	164
Figure 4-5. Geographic Access to VA Facilities During Rush Hour Traffic, by Standard .....	167
Figure 4-6. Driving Time to Hospitals for Medicare Beneficiaries and VA Enrollee Willingness to Travel .....	171
Figure 4-7. Geographic Access to Non-VA Hospitals, for All Enrollees, Enrollees <40 Miles from VA Medical Facilities, and Enrollees Residing >40 Miles from VA Medical Facilities .....	175
Figure 4-8. Geographic Access to Non-VA Physicians Among VA Enrollees, by Specialty, 2013 .....	180
Figure 4-9. Variation Across VISNs in Geographic Access to Non-VA Physicians Among VA Enrollees, by Specialty, 2013 .....	181
Figure 4-10. Geographic Access to Non-VA Physicians Among Enrollees Residing >40 Miles from VA Medical Facilities, by Specialty, 2013 .....	183
Figure 4-11. Variation Across VISNs in Geographic Access to Non-VA Physicians Among Enrollees Residing >40 Miles from VA Medical Facilities, by Specialty, 2013 .....	184
Figure 4-12. Geographic Access to Non-VA Physicians Among Enrollees Residing <40 Miles from VA Medical Facilities, by Specialty, 2013 .....	185
Figure 4-13. Variation Across VISNs in Geographic Access to Non-VA Physicians Among Enrollees Residing <40 Miles from VA Medical Facilities, by Specialty, 2013 .....	186
Figure 4-14. Percentage of VA Appointments Completed Within 0–14, 15–30, 31–60, and 61+ Days of Preferred Date, First Half of FY 2015 .....	190

## Assessment B (Health Care Capabilities)

---

Figure 4-15. Percentage of VA Appointments Completed Within 30 Days of Preferred Date, First Half of FY 2014 and First Half of FY 2015 .....	192
Figure 4-16. Variation Across VA Facilities in Number of Days Waited for an Appointment Following Preferred Date, First Half of FY 2015 .....	193
Figure 4-17. Number of VA Facilities with Wait Times Near, Below or Far Below Benchmarks, First Half of FY 2015, by Appointment Type .....	194
Figure 4-18. VA Facility Average of Percent of Veterans Responding “Always” to Access Questions on the SHEP PCMH, FY 2014.....	197
Figure 4-19. Percentage of Veterans in VA Facilities Responding That They “Always” Got Appointment for Routine Care as Soon as Needed, by Performance on Primary Care Wait Times .....	198
Figure 4-20. Annual Out-of-Pocket Payments Reported by VA Users in 2012, by Insurance Type .....	202
Figure 5-1. Number of Studies in Systematic Review, by Quality Dimension and VA Performance, Compared with Non-VA.....	210
Figure 5-2. VA versus Non-VA Quality of Care, by Type of Quality Measure .....	218
Figure 5-3. VA and Non-VA Performance on Patient Safety Indicator Measures for Inpatient Setting, FY 2014 .....	220
Figure 5-4. VA and Non-VA Performance on Readmission and Mortality Measures for Inpatient Setting, FY 2014.....	221
Figure 5-5. VA and Non-VA Performance on ORYX Process Measures for Inpatient Setting, FY 2014 .....	223
Figure 5-6. VA and Non-VA Performance on Surgical Care Improvement Project Measures for Inpatient Setting, FY 2014 .....	224
Figure 5-7. Performance on Outpatient Measures of Diabetes Care Quality, VA FY 2013 Compared with Non-VA CY 2013 .....	226
Figure 5-8. Performance on Other Outpatient Quality Measures, VA FY 2013 Compared with Non-VA CY 2013 .....	227
Figure 5-9. Performance on Other Outpatient Quality Measures, VA FY 2013 Compared with Non-VA CY 2013 .....	228
Figure 5-10. VA and Non-VA Performance on Patient Experience Measures for Inpatient Setting, FY 2014 .....	230
Figure 5-11. VA Performance on SHEP Patient Experience Measures for Outpatient Setting, FY 2014 .....	233
Figure 5-12. Patient Experience with Follow-Up on Test Results in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014 .....	234



## Assessment B (Health Care Capabilities)

---

Figure 5-13. Patient Experience with Care Coordination Between Providers in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014 .....	235
Figure 5-14. Patient Experience with Pain Management in Inpatient Setting: Number of VA Facilities by Measure Rate, FY 2014 .....	236
Figure 5-15. Eye Exams in Patients with Diabetes in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014 .....	237
Figure 6-1. Actual Supply FY 2009 to FY 2014 and Projected Supply FY 2015 to FY 2019 of VA Physician Clinical FTEs .....	242
Figure 6-2. Projected Growth in Demand and Supply for VA Health Care Services, from FY 2015 to FY 2015-FY 2019.....	243
Figure 6-3. Projected Growth in Demand and Supply for VA Health Care Services from FY 2014 to FY 2019, by VISN .....	244
Figure 6-4. Projected Changes in Demand and Supply for VA Health Care Services, by Administrative Parent and Selected Specialties, FY 2014 to FY 2019 .....	247
Figure 6-5. Projected Demand and Supply for VA Health Care Services Under Scenario Two, Increasing Productivity.....	249
Figure 6-6. Projected Demand and Supply for VA Health Care Services by VISN Under Scenario Two, Productivity Level 3 .....	250
Figure 6-7. Projected Demand and Supply for VA Health Care Services Under Scenario Three, Increasing the Number and Productivity of Resources.....	252
Figure 6-8. Projected Demand and Supply for VA Health Care Services by VISN, Under Scenario Three, Productivity Level 1.....	253
Figure A-1. Literature Flow for Access Review .....	A-16
Figure A-2. Literature Flow for Systematic Review of Quality.....	A-25
Figure A-3. Flow Chart of Peer-Reviewed and Grey Literature .....	A-27

## List of Tables

Table 1-1. Types of VA Health Care Resources .....	4
Table 1-2. Dimensions of Access to Health Care .....	6
Table 1-3. Dimensions of Health Care Quality.....	6
Table 2-1. Description of How Selected Populations Contribute to Breadth Criteria .....	11
Table 2-2. Key Questions and Search Terms Used in Targeted Literature Reviews .....	13
Table 2-3. Key Questions and Search/Inclusion Strategies Used in Systematic Literature Reviews .....	15

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

Table 2-4. Capacity, Complexity, and Metropolitan Context of VAMCs Used in Selecting Interviewees .....	18
Table 2-5. Data Sources and Measures for Assessing Resources and Capabilities (Other Than Literature Review, Interviews, Survey) .....	22
Table 2-6. Data Sources and Measures of Access .....	25
Table 2-7. Data Sources and Measures of Quality.....	26
Table 2-8. Example of Condition-Specific Services for Traumatic Brain Injury .....	30
Table 3.1-1. Major Categories of VA Budget Allocation (in Millions) .....	47
Table 3.1-2. VERA Allocation Amounts per Condition Group.....	51
Table 3.1-3. VERA Allocations, Specific Purpose, Transformation, and Estimated Receipts, by VISN, FY 2014 (in millions) .....	52
Table 3.2-1. VA Physician Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014 .....	70
Table 3.2-2. VA Primary Care Physician Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014.....	73
Table 3.2-3. VA Associate Provider Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014 .....	74
Table 3.2-4. VA Primary Care Associate Provider Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014.....	75
Table 3.2-5. VA Therapist Clinical FTEs Overall at the Facility Level and Per 1,000 Unique Facility Patients, FY 2014.....	75
Table 3.2-6. VA Work RVUs Per Physician Clinical FTE for Select Specialties at the Facility Level, FY 2014 .....	77
Table 3.2-7. VA Work RVUs Per Associate Provider at the Facility Level, FY 2014.....	80
Table 3.2-8. Percentage of Total Work RVUs Attributed to Fee-Basis and Other Physicians and Associate Providers at the Facility Level, FY 2014 .....	81
Table 3.2-9. VA Panel Size Per Primary Care Provider Clinical FTE, September 30, 2014 .....	82
Table 3.2-10. VA Encounters Per Therapist Clinical FTE at the Facility Level, FY 2014 .....	83
Table 3.2-11. VA Wait Times for New and Established Patients by Specialty at the Facility Level, FY 2014 .....	85
Table 3.2-12. VA Average Wait Times Across Facility-Specialty Combinations with High Versus Low Wait Times .....	86
Table 3.2-13. VA Average Productivity Across Facility-Specialty Combinations with High Versus Low Wait Times .....	89
Table 3.2-14. Effect of VA FTEs per 10,000 Unique Patients and Productivity on Wait Times ....	91

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

Table 3.2-15. VA Physician Total Compensation Compared with Non-VA Physicians .....	92
Table 3.3-1. Types and Numbers of VA Health Care Sites .....	99
Table 3.3-2a. VA Operating Beds per 10,000 Enrollees, by Bed Type .....	103
Table 3.3-2b. VA Average Daily Census per 10,000 Enrollees, by Bed Type, and Hospital Bed Occupancy .....	103
Table 3.3-3. Count of VA Administrative Parents by Level of Complexity .....	104
Table 3.3-4. Number of VA Sites with Selected Clinical Population-Specific Services .....	105
Table 3.3-5. VA Transportation Services by VISN .....	107
Table 3.3-6. Housing Services per 10,000 Enrollees, by VISN, 2015.....	109
Table 3.4-1. VA Spending by VA Purchased Care Category, FY 2008–FY 2012.....	115
Table 3.4-2. Number of VA-Provided and VA-Purchased Mental Health Outpatient Visits, FY 2014 .....	117
Table 3.4-3. Number of Patients Treated in VA and Non-VA Inpatient Settings, FY 2014 .....	117
Table 3.4-4. VA and DoD Joint Venture Locations.....	122
Table 3.5-1. Telehealth Definitions.....	130
Table 3.5-2. Number of VA Telehealth Encounters by Type, 2014 .....	131
Table 3.5-3. Growth Trends in the Adoption and Use of MyHealtheVet, 2010-2014.....	139
Table 3.5-4. VA Mobile Applications.....	142
Figure 4-1. Enrollees’ Geographic Access to VA Medical Facilities: 40-Mile Driving Distance...	161
Figure 4-2. Four Geographic Access Standards in Pittsburgh.....	162
Figure 4-3. Four Geographic Access Standards in Southern California .....	163
Figure 4-4. Geographic Access to VA Facilities, by Type of Facility and Standard .....	164
Table 4-1. Mean (Standard Deviation) Driving Distance to Closest VA Medical Facility (in miles), by Type of Facility.....	165
Figure 4-5. Geographic Access to VA Facilities During Rush Hour Traffic, by Standard .....	167
Table 4-2. Enrollees’ Geographic Access to VA Clinical Population-Specific Services.....	168
Table 4-3. Demographic and Service Characteristics of Enrollees Living Inside and Outside 40-mile Driving Distances from VA Medical Facilities .....	173
Table 4-4. Clinical Characteristics of Enrollees Living Inside and Outside 40-mile Driving Distances from VA Medical Facilities .....	174
Table 4-5. Average Driving Distance for Enrollees to Closest Non-VA Hospitals by Hospital Type (in miles; standard deviation shown in parentheses).....	176

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

Table 4-6. Geographic Access (within 40 Miles) to Selected Non-VA Hospital Services, Enrollees Residing >40 Miles from VA Medical Facilities Compared with All Enrollees .....	177
Table 4-7. Average Number of Total Physicians and Physicians Accepting Medicare and New Patients Within and Outside of 40 Miles of VA Enrollees with at Least One Provider in Each Category, 2013 .....	182
Table 6-1. Projected Growth in Demand and Supply for VA Health Care Services, by Specialty, FY 2014 to FY 2019.....	244
Table 6-2. Projected Percentage Difference Between VA FY 2019 Demand and Supply, by Productivity Level and Specialty, Under Scenario Two .....	250
Table 6-3. Projected Percentage Difference Between VA FY 2019 Demand and Supply, by Productivity Level and Specialty, Under Scenario Three .....	254
Table 6-4. Framework for Selected Policy Options.....	257
Table 6-5. Summary Evaluation of Selected Policy Options .....	288
Table A-1. Breadth Criteria Characteristics of the 20 Candidate Clinical Populations Meeting the Screening Criteria.....	A-2
Table A-2. Definitions of Condition-Specific Services .....	A-7
Table A-3. VA Access Measures and Questions By Domain (Timeliness, Geographical, Financial, Digital, and Cultural) .....	A-12
Table A-4. HEDIS Outpatient Quality Measures of Effectiveness Reported by VA and the National Committee for Quality Assurance .....	A-17
Table A-5. Patient Experience Measures for Outpatient and Inpatient Settings Reported by VA and Non-VA Facilities.....	A-18
Table A-6. Inpatient Hospital Quality Measures Reported by VA and Non-VA Hospitals .....	A-19
Table A-7. Search Strategy: Main Search for Potential Policy Options .....	A-28
Table A-8. Search Strategy: Targeted Search.....	A-29
Table B-1. VA Administrative Parents, by VISN .....	B-5
Table B-2. Response Rates .....	B-12
Table B-3. Typical Titles of Respondents by Module .....	B-13

# 1 Introduction

## 1.1 Background

Access to quality health care is a central part of our nation's commitment to Veterans. In February 2014, a recently retired Department of Veterans Affairs (VA) physician alleged that at least 40 Veterans died while waiting for care at the Phoenix VA Health Care System. While the allegations of deaths were not proven, this raised questions about how effectively the commitment to Veterans was being fulfilled (VA, Office of Inspector General, 2014). Does VA have the resources and capabilities to ensure that Veterans have access to the health care they need? What is the best way to ensure that Veterans' needs are met?

Following the Phoenix allegations, the VA Office of Inspector General investigated the timeliness of VA health care, finding that wait lists for appointments were being used inappropriately. Some VA staff regularly entered false information regarding patients' preferred dates of care to minimize reported wait times between the preferred date and the actual date of appointments. They kept paper lists of patients for days or weeks before adding them to the official electronic wait list. The Inspector General also pointed to systemic issues within VA that may limit Veterans' access to care, including lack of available appointments within certain clinical specialties and problems with care transitions for patients discharged from mental health services.

The Phoenix allegations focused a strong spotlight on Veterans' health care. However, accessibility and timeliness of care are longstanding areas of concern within VA. Just in the past decade, there were 20 other reports similar to the VA Inspector General's 2014 report, as well as a series of U.S. Government Accountability Office (GAO) reports addressing time spent waiting for health care, physician staffing levels, and other issues related to health care access. VA has many ongoing programs and initiatives to increase access to care for Veterans, including programs to give Veterans access to non-VA health care providers.

The Veterans Choice Act was passed to address these issues and to provide other short-term improvements in Veterans' access to care. The Veterans Choice Program expanded VA authority to furnish care to Veterans through agreements with non-VA providers. Veterans are eligible for the Veterans Choice Program if they are unable to schedule an appointment within 30 days of their preferred date or live more than 40 miles from a VA medical facility. The Veterans Choice Act includes a number of other provisions designed to increase access to VA and non-VA providers, including improved access to telemedicine through mobile medical centers; 27 new major medical facility leases; increased transparency of performance data on VA providers, including wait times; new residency and other training and education programs; and recruitment and appointment of personnel in occupations identified by the VA Inspector General as having the greatest shortages. The law includes appropriations for VA to support these activities.

Section 201 of the Veterans Choice Act includes a requirement for an independent assessment of VA health care addressing 12 specific questions (denoted A through L, based on the legislative language). This report addresses Assessment B, which the Veterans Choice Act

describes as “an independent assessment of the current and projected health care capabilities and resources of VA, including hospital care, medical services, and other health care furnished by non-VA facilities under contract with VA, to provide timely and accessible care to Veterans” (Veterans Choice Act, Section 201).

### 1.2 Objectives

The objectives of this report are to assess VA’s current and projected resources and capabilities, the level and nature of access to VA care, and barriers and facilitators to access. Against this background, we then explore how selected policies could affect Veterans’ access to high-quality care. Specifically, we address the following research questions:

- What are VA’s current resources and capabilities in key domains?
- What are current levels of access to VA care?
- What is the quality of care in VA?
- What are VA’s projected resources and capabilities to provide timely and accessible care, and how might different policy options enhance VA’s resources and capabilities for treating Veterans in the future?

### 1.3 Scope

We defined key types of health care resources and capabilities, as described in Subsection 1.4. Some types of health care resources are examined in greater detail by other Section 201 assessments. In areas of overlap, we coordinated with the other assessments, providing an overview in this report with reference to more detailed discussions in the other assessment reports.

The following bullets summarize the other assessments conducted as part of this project:

- Assessment A: Current and projected demographics and unique health care needs. We used VA’s projections of Veteran demand for health care services to analyze how VA resources and capabilities to provide access to care would change under different policy scenarios. Assessment A discussed VA’s demand projections, arrived at an independent projection of how the Veteran population and its unique health care needs will change in the future, and examined how future demand for VA health care could change under different policy scenarios.
- Assessment C: Authorities and mechanisms for care at non-Department facilities. We discussed current VA resources and capabilities to provide access to care under contract and purchased from non-VA entities, and discussed policy options to improve access through greater use of purchased care. Assessment C described the authorities and mechanisms to provide purchased care in detail. While Assessments B and C used similar data to describe purchased care use, Assessment C described policy options to change VA authorities and mechanisms to purchase care in greater detail.
- Assessment D: System-wide access standard. In our assessment of access to VA care, we used access standards in use by VA and compared these with available private-sector

standards. Assessment D performed a more systematic review of standards for access, scheduling, and wait times. (The results of this review were not available while we were conducting our analysis).

- Assessment E: Workflow process for scheduling. We included scheduling as one type of capability studied. Assessment E assessed VA scheduling processes in greater detail.
- Assessment F: Organization, workflow processes, and tools to support inpatient care. Clinical workflow is one type of barrier to access considered in our analyses. Assessment F assessed VA systems and processes that support care delivery within the hospital setting in greater detail.
- Assessment G: Staffing levels at medical facilities: Both Assessments B and G used VA data to estimate provider counts and productivity for physicians and associate providers in the VA system. Assessment G processed and made these data available to Assessment B. Assessment B included estimates of provider counts and productivity for therapists (for example, physical therapists and occupational therapists), which Assessment G did not. Assessment B combined these data with wait-time and interview data to estimate the specialties with capacity constraints and to identify factors affecting capacity. Assessment B also estimated VA enrollees' geographic access to non-VA physicians and estimated potential capacity constraints of those physicians.
- Assessment H: Information technology strategies. We studied VA IT resources and capabilities that directly impact Veteran access to care. Assessment H focused on VA IT in greater detail from the strategy and management perspectives.
- Assessment I: Business processes of the Veterans Health Administration (VHA): Assessments B and I analyzed some common data on purchased care spending. Assessment I assessed processes related to purchased care, such as the accuracy and timeliness of VA payments to vendors and providers, as well as revenue collection for VA provided care.
- Assessment J: Purchasing, distribution, and use of pharmaceuticals, supplies, and devices: We included medical technology and supplies as one type of resource used by VA, while Assessment J focused in more detail on purchasing, distribution, standardization, and use of pharmaceuticals, supplies, and devices.
- Assessment K: Construction and maintenance projects at medical facilities. We included physical infrastructure as one type of VA resource and analyzed geographic access to VA facilities. Assessment K evaluated VA processes to deliver medical facilities, including capital management, construction, leasing, and maintenance.
- Assessment L: Competency of leadership. We did not directly study leadership, but we recognize that it affects the resources and capabilities we studied. Assessment L directly assessed VHA leadership.

### 1.4 Definitions of Key Concepts

Access to care has been defined in conceptual models that are widely used in research and other assessments of access. Similarly, definitions and frameworks of health care quality and

organizational capacity, resources, and capabilities have been developed. We drew on these frameworks to define the key concepts that are the foundation of Assessment B.

### **1.4.1 VA Resources and Capabilities**

The VA system includes a wide range of health care capabilities that draw on resources owned or leased by VA, as well as resources under contract and purchased from non-VA entities.

**Resources** are assets that VA can use to provide access to care for Veterans. Important resources include the financial means to support health care for Veterans, human resources, facilities, relationships with other organizations to provide care, and IT (Table 1-1).

**Capabilities** are the ability of VA to use its resources in coordinated tasks to provide access to care for Veterans (Helfat & Peteraf, 2003). The fact that VA has a resource does not necessarily mean that the resource is used effectively to enable a capability to provide access to care. For example, VA may have a certain number of facilities staffed by cardiologists, but only some of those facilities may have the capability to provide some specialized cardiology services.

**Table 1-1. Types of VA Health Care Resources**

<b>Types of Resources</b>	<b>Definition</b>
Fiscal	Funding sources and allocations, as well as alternative sources of finance, operating budget, and capital (for example, VA budget allocations).
Workforce and human resources	The employees who support and provide health care for Veterans (for example, physicians, nurses, clinical support staff).
Physical infrastructure	The physical structure needed to support provision of care (for example, medical centers, outpatient clinics, medical equipment).
Interorganizational relationships	Relationships with other organizations that VA can use to improve Veterans' access to care (for example, the Veterans Choice Program).
IT	Information and information technology (IT) resources such as computing and IT equipment, IT support, and databases (for example, patient portals, electronic health records, telemedicine).

Source: Adapted from Meyer et al., 2012.

### **1.4.2 Access, Timeliness, and Quality**

A broad definition of **access** is “the fit between the individual and the health care system” (Fortney et al., 2011; Penchansky & Thomas, 1981). Put another way, Veterans' access to health



care depends on how well the health care system addresses patient needs. Both the characteristics of the health care system and the characteristics of the individual are important in determining this match. For example, can a Veteran with diabetes see a podiatrist before poor foot care leads to infection and possible limb amputation? Can a Veteran with endometriosis and symptomatic anemia have access to a gynecologist for surgery? Does a Veteran with posttraumatic stress disorder (PTSD) have access to psychotherapy with a provider trained in evidence-based treatment for PTSD?

Access to health care services does not automatically translate into actual service use. Veterans may have excellent access to care that, in theory, fits their needs, but they may or may not take advantage of available care to use health care services. Access to care is a prerequisite for use, however, and therefore a key factor affecting Veterans' health and experiences of care.

Access is a general concept that subsumes more specific aspects of the fit between individuals and the health care system (Penchansky & Thomas, 1981). **Timeliness** is a dimension of access focused on how promptly needed care is available (Fortney et al., 2011). The allegations at the Phoenix VA Health Care System focused on time spent waiting for health care appointments, one aspect of timeliness. Our assessment team defined *untimely care* as delays in care that put Veterans at risk of poor health outcomes, either because symptoms are not resolved in a time frame compliant with VA guidelines or because delays cause patients not to follow up with treatment. Delays in care that could put Veterans at risk of death or other poor health outcomes are clearly harmful in a clinical sense. However, even if delays do not directly change patient outcomes, they may be important from the Veteran's perspective. For example, time spent in a waiting room could lead to missed time at work or with family, and long waits for appointments could cause anxiety.

Timeliness of care means different things for Veterans with different health care needs. For example, consider three scenarios:

- A Veteran seeks to enroll in VA health care and establish a relationship with a primary care physician. How long does it take for the Veteran to enroll? How much time elapses between enrollment and the first visit to the primary care physician?
- Following the first visit, the Veteran is referred to a cardiologist and a dermatologist for consultation on two specific health problems. How long is it before the Veteran sees these specialists?
- As a result of these visits, the Veteran requires ongoing care that must be closely coordinated between the primary care provider and the specialist physicians. When the Veteran arrives at the next primary care appointment, will the relevant information from the specialist visits be available to the primary care physician?

In this report, we examine available data on the timeliness of VA health care. Other dimensions of access are listed in Table 1-2. These dimensions—including geographic access to health care providers, financial considerations, digital connectivity, and the cultural acceptability of health care—are vital in ensuring that health care is accessible to Veterans. We did not assess VA's current eligibility structure because our assessment scope was resources and capabilities to provide care, not eligibility for benefits.

**Table 1-2. Dimensions of Access to Health Care**

Dimensions of Access	Definition
Geographic	The ease of traveling to health care providers. For example, how far does a Veteran live from needed health care services? How long does it take to travel to appointments? Is it possible to take public transportation, and if so, how long is spent in transit?
Timely	The ability to obtain care and get it promptly. For example, when are Veterans able to schedule appointments for needed care? How long do they wait during health care visits?
Financial	Eligibility for VA services and the cost of VA services. For example, how much do Veterans pay out-of-pocket for VA health care services?
Digital	Connectivity enabling digital communications with providers, caregivers, peers, and computerized health applications. For example, do Veterans own or have the right to use digital channels of communication?
Cultural	The acceptability of health services to the patient. For example, can Veterans receive services in a language in which they are comfortable communicating? For a Veteran with a stigmatizing illness, are services offered by providers whose behavior does not cause the Veteran to feel discriminated against?

Source: Derived from Fortney et al., 2011.

The **quality** of health care services is critical to understanding access to care, since access is beneficial only if adequate quality care is provided. The Institute of Medicine has defined six dimensions of health care quality (Table 1-3): Care should be safe, timely, equitable, effective, efficient, and patient-centered (Institute of Medicine, 2001). In this report, we examine the quality of VA health care in comparison with non-VA care as measured in previous studies and by analyzing more recent VA performance data.

**Table 1-3. Dimensions of Health Care Quality**

Dimension of Quality	Definition
Safe	Avoiding injury to patients from the care intended to help them. For example, do hospitalized patients develop avoidable infections?
Timely	Reducing wait times for both providers and patients. For example, are stroke patients treated quickly?
Equitable	Providing care that does not vary in quality because of personal characteristics such as gender, race/ethnicity, and socioeconomic status. For example, is a heart attack diagnosis more likely to be missed in women than men?

<b>Dimension of Quality</b>	<b>Definition</b>
Effective	Providing evidence-based services to those who could benefit, and not giving services to those unlikely to benefit. For example, do patients with diabetes receive recommended screening?
Efficient	Avoiding waste, including waste of equipment, supplies, ideas, and energy. For example, are duplicate unnecessary medical tests provided to the same patient?
Patient-centered	Providing care that is responsive to individual patient preferences, needs, and values. For example, how well do health care providers communicate with patients?

Source: Institute of Medicine, 2001.

## **1.5 Improving Access for Veterans**

The Veterans Choice Act aims to improve access to VA care in the short term. However, longer-term solutions are also needed to ensure that VA is positioned to meet Veterans' needs in the future. Over time, the size, demographics, and health needs of the Veteran population will change. VA will need to adjust its resources and capabilities to meet the changing demand for services and to select appropriate policies to meet demand. VA has a number of options. For example, some policy options for ensuring access to health care focus on increasing the number and type of resources that VA owns or that it purchases from the private sector. Other policy options for ensuring access to health care seek to improve the productivity of VA's existing capabilities to provide care (for example, by formalizing task assignments in outpatient clinics to improve clinic workflow). These are selected examples among many proposed options for improving the nation's ability to fulfill its commitment to Veterans. We assess a number of policy options designed to improve access, providing information on the expected impact on access, fiscal considerations, operational feasibility, stakeholder acceptability, and the tradeoffs among them.

## **1.6 Organization of Report**

The remainder of this report consists of six sections:

- Section 2 provides an overview of the methods used in the assessment.
- Section 3 provides an assessment of five types of resources and capabilities: fiscal, workforce and human resources, physical infrastructure, interorganizational relationships, and IT.
- Section 4 provides an assessment of access to VA care along five dimensions: geographic, timely, financial, digital, and cultural.
- Section 5 provides an assessment of the quality of VA care, using the six domains outlined by the Institute of Medicine: safety, timeliness, equity, effectiveness, efficiency, and patient-centeredness.

- Section 6 discusses approaches VA could use to adjust resources and capabilities to improve access for Veterans.
- Section 7 describes our conclusions and recommendations.

The report also includes nine appendices, five of which are included in a separate document:

- Appendix A: Methods
- Appendix B: Survey
- Appendix C: References
- Appendix D: Acronyms
- Appendix E: Summary of Qualitative Interviews
- Appendix F: Supplementary Access Materials
- Appendix G: Supplementary Quality Materials
- Appendix H: Projections
- Appendix I: Survey Data Tables.

## 2 Overview of Methods

### 2.1 Introduction

In this section, we provide an overview of the mixed-methods approach we used to assess VA's current resources and capabilities, the level and nature of access to VA care, barriers to and facilitators of access, the quality of care, and policy options for enhancing VA resources and capabilities. We collected data through literature reviews, key informant interviews, a survey of VA administrative parent organizations, and from VA and non-VA data sources.<sup>3</sup> We conducted analyses of the data and other secondary sources, including VA and other data sources, to inform the assessment.

In addition, we selected seven “illustrative clinical populations” to provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans. We analyzed these to supplement analyses of VA as a whole in areas where overall analyses are too broad to provide a sufficient understanding of relevant issues.

We also developed a method for projecting future resources to compare with forecasted changes in patient demand for VHA treatment to identify potential gaps. To support analyses of future options for VA to address identified gaps, we used a multipronged approach to identify and analyze a reasonable range of feasible policy options to enhance VA's ability to provide timely and accessible care to Veterans.

This section provides a high-level discussion of the specific methods used in Assessment B, as follows:

- Subsection 2.2: Illustrative Clinical Populations
- Subsection 2.3: Literature Reviews
- Subsection 2.4: Interviews
- Subsection 2.5: 2015 Survey of VA Resources and Capabilities
- Subsection 2.6: Data Sources and Measures
- Subsection 2.7: Data Analyses
  - Resources and Capabilities (Subsection 2.7.1)
  - Access to Care (Subsection 2.7.2)
  - Quality of Care (Subsection 2.7.3)
- Subsection 2.8: Assessing Options for Enhancing VA Resources and Capabilities
  - Future Policy Options (Subsection 2.8.1)

---

<sup>3</sup> According to the VHA Handbook (VA, 2013b) an administrative parent is defined as a collection of all the points of service that a leadership group (Medical Facility Director, Deputy Medical Facility Director, Chief of Staff, Associate or Assistant Director, and Nurse Executive) manages. The points of service can include any institution where health care is delivered. All the data originating from these points of service roll up to a single station number representing the administrative parent for management and programmatic activities.

- Projecting Needed Resources in the Future (Subsection 2.8.2).

Additional information about methodology can be found in Appendix A.

## 2.2 Illustrative Clinical Populations

To provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans, we selected seven “illustrative clinical populations.” We conducted analyses focused on these clinical populations to supplement analyses of VA as a whole in areas where overall analyses are too broad to provide a sufficient understanding of relevant issues. In the analyses of the illustrative clinical populations, we identified the resources needed to treat these populations (for example, types of providers, infrastructure, equipment) and conducted analyses assessing the level of those resources. We measured geographic access to specific services needed by these populations. In addition, the 2015 Survey of VA Resources and Capabilities was designed to provide information specifically about these populations and to identify points in the care process where they may face delays.

We selected the seven illustrative clinical populations to ensure that the portfolio of populations considered in these analyses reflects populations of particular interest to VA (for example, high prevalence, congressional focus, service connection) and is diverse on important characteristics. We defined a clinical population as a group of individuals with a need for specific health care resources. Therefore, a clinical population could include individuals with certain clinical conditions (for example, type II diabetes mellitus, PTSD) or individuals who have received a certain type of medical treatment (for example, who are in need of gynecological surgery). The seven populations selected are Veterans with acute coronary syndromes, colon cancer, PTSD, substance use disorder (SUD), traumatic brain injury (TBI), type II diabetes mellitus, and women’s diagnoses requiring gynecological surgical intervention.

We selected clinical populations by applying screening criteria to each candidate population and applying breadth criteria to a subset of populations that met the screening criteria. We defined the screening criteria as follows:

1. **Importance:** Selected clinical populations should be “important,” defined as being of particular interest to those seeking to understand VA resources and capabilities, including populations that are either unique to or disproportionately prevalent in the Veteran population. The importance may be due to high prevalence, high costs, or high visibility (that is, listed as VA priorities or which have received specific public, congressional, or legislative attention).
2. **Measurability:** Selected clinical populations should be feasibly identified in the VA population using International Classification of Diseases-9 codes in a reliable and valid manner (subject to limitations of administrative data due to variation in coding practices). This allows for analyses of encounter data to illustrate access-related issues in the selected populations.

We defined the breadth criteria to ensure diversity along the following dimensions:

1. **Type of care:** Medical and behavioral health care services should be represented, as should health care services required to treat service-connected disabilities.
2. **Acuity:** The care required by the selected populations should vary in the level of urgency, covering the range of preventive care, routine chronic illness care, and urgent acute care.
3. **Care setting:** The services typically used by the selected populations should be provided in a variety of health care settings (for example, acute care hospitals, emergency departments, outpatient primary care clinics, outpatient specialty care clinics).
4. **Workforce:** A variety of types of providers who typically treat the selected clinical populations should be represented, including specialists and generalists; medical, surgical, and behavioral health care providers; ancillary staff; and providers who work in teams.
5. **Population diversity:** The conditions should reflect population diversity (sex, age).

We applied the screening criteria using a two-step process. First, to identify important and measurable clinical populations, we selected the 37 conditions identified by the VA–Department of Defense (DoD) Reporting & Analysis Datamart Technical Advisory Group as high-interest groups. We used prevalence data provided by the VA Healthcare Analysis and Information Group to select the 10 most prevalent medical high-interest groups, the five most prevalent behavioral health high-interest groups, and all conditions that were primarily attributable to military service. The result was the 20 populations listed in Appendix A, Table A-1. We made some adjustments to the initial list of 20 populations before applying the breadth criteria to eliminate some populations that were too broad and to meet the population diversity criterion (which required the addition of a population composed mainly of women). Based on input from VA experts in women’s health, we included the category of conditions that require gynecologic surgery. We then used the breadth criteria to select six additional clinical populations from the set of 20 to provide the desired diversity of characteristics. In Table 2-1, we list the seven selected clinical populations and describe them based on the breadth criteria.

**Table 2-1. Description of How Selected Populations Contribute to Breadth Criteria**

Clinical Population	Description of Contribution to Breadth Criteria
Acute coronary syndromes	Acute inpatient care, emergency department care, and chronic illness care. Specialty workforces (cardiology, cardiovascular surgery, emergency medicine, interventional radiology) play a substantial role.
Conditions requiring gynecologic surgery	Surgical conditions. Can be inpatient or outpatient surgery. Specialty workforce (gynecologists, operating room staff trained in gynecologic surgery). Population diversity (women).

## Assessment B (Health Care Capabilities)

Clinical Population	Description of Contribution to Breadth Criteria
Type II diabetes	Primarily routine outpatient care for management of chronic condition. Some acute exacerbations. Primary care workforce, occasional specialty care (endocrinology, nutrition, podiatry, ophthalmology). Often managed by a team.
Colon cancer	Time course is sub-acute, but timeliness of care is particularly important. Infrastructure needs include outpatient clinics, inpatient hospital care (sometimes semi-elective), surgical facilities, and specialized outpatient facilities (for example, chemotherapy, radiation therapy). Primary care for screening and sometimes diagnosis. Specialty workforce (for example, oncology, surgery, radiation therapy) needs predominate after diagnosis.
TBI	Often service-connected. Interdisciplinary, rehabilitation-focused care. Population diversity (younger Veterans). Workforce (neurologists and physical medicine and rehabilitation, and pain specialists).
PTSD	Usually service-connected. Primary care and outpatient specialty mental health; some specialized residential PTSD programs. Workforce includes psychiatrists and psychologists trained in evidence-based psychotherapy for PTSD. Treatment can be delivered via telemental health.
SUD	Chronic condition with acute exacerbations. Primarily outpatient care in primary care, specialty care, or specialty substance abuse care, but frequent emergency care for a subsection of the population. Residential rehabilitation (for example, domiciliary, residential treatment) plays a substantial role; inpatient detoxification services. Some medications are either expensive (injectable naltrexone) or difficult to access (methadone, buprenorphine, injectable naltrexone).

## 2.3 Literature Reviews

The Assessment B team conducted several literature reviews to provide background and context for the assessment. For each type of resource (for example, fiscal, physical infrastructure), we conducted a targeted literature review to identify information about current levels, trends over time, and key issues and concerns. We also conducted formal, in-depth systematic literature reviews to assess the evidence related to access, quality, and potential policy options for enhancing VA's resources and capabilities.

### 2.3.1 Targeted Literature Reviews

The targeted literature reviews in each resource area included both the peer-reviewed and gray literature. We developed search terms for each type of resource and searched databases such as PubMed and GreyLit. We reviewed the articles and reports returned by the search and abstracted relevant information. We incorporated data from the literature review into the



## Assessment B (Health Care Capabilities)

analyses of current levels of resources, geographic variation, trends over time, and key issues or concerns. Example questions, sources, and example search terms are shown in Table 2-2.

**Table 2-2. Key Questions and Search Terms Used in Targeted Literature Reviews**

Resource Category	Sample Questions	Data Sources	Example Search Terms
Fiscal	<ul style="list-style-type: none"> <li>▪ How does VA develop its budget?</li> <li>▪ How does VA allocate the funds it receives from Congress?</li> <li>▪ What are the challenges associated with VA's funding processes and what are the consequences?</li> <li>▪ How do VA funding and expenditures on medical care compare with the private sector?</li> </ul>	<ul style="list-style-type: none"> <li>▪ PubMed</li> <li>▪ GreyLit</li> <li>▪ Congressional testimony</li> </ul>	<ul style="list-style-type: none"> <li>▪ Veterans Administration and:</li> <li>▪ Budget, expenditure, resource allocation</li> </ul>
Workforce and Human Resources	<ul style="list-style-type: none"> <li>▪ How does VA assess and plan current and future workforce capacity?</li> <li>▪ What are the observed and perceived constraints on workforce capacity within VA's system?</li> <li>▪ What factors affect the capacity of the VA workforce?</li> <li>▪ What types of approaches does VA use to expand workforce capacity?</li> </ul>	<ul style="list-style-type: none"> <li>▪ PubMed</li> <li>▪ Google Scholar</li> <li>▪ Grey Literature Report</li> <li>▪ VA documentation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Veterans Administration and:</li> <li>▪ Workforce, staffing, human resources, manpower, personnel, scheduling</li> <li>▪ Physician, nurse, hospitalist, hospital staff, doctor, clinician</li> <li>▪ Personnel selection, recruit, retention, turnover, burnout, retain</li> <li>▪ Capacity, capability, productivity, efficiency,</li> </ul>

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Resource Category	Sample Questions	Data Sources	Example Search Terms
			relative value scales, practice management
Physical Infrastructure	<ul style="list-style-type: none"> <li>What proportion of a population of Veterans is within a certain distance or travel time from a facility or care?</li> <li>What are barriers or facilitators to geographic access to health care for Veterans?</li> </ul>	<ul style="list-style-type: none"> <li>Cumulative Index to Nursing and Allied Health Literature</li> <li>Ovid MEDLINE</li> <li>PubMed</li> </ul>	<ul style="list-style-type: none"> <li>Veteran and:</li> <li>Access or geographic or distance or travel</li> <li>Health or medical or disorder</li> </ul>
Interorganizational Relationships	<ul style="list-style-type: none"> <li>What are the resources and capabilities of non-VA health care organizations to provide additional access to health care for Veterans?</li> </ul>	<ul style="list-style-type: none"> <li>VA and DoD public documents</li> <li>Reports from the GAO, Congressional Research Service, and VA Office of Inspector General</li> <li>Congressional testimony</li> </ul>	<ul style="list-style-type: none"> <li>Veterans Administration and:</li> <li>Purchased care, individual authorizations, Patient Centered Community Care Program (PC3), Access Received Closer to Home (ARCH), Veterans Choice Program, Non-VA Care Coordination, Fee Basis Claims System</li> <li>Sharing agreements, affiliated academic medical centers, DoD, Indian Health Services, Federally Qualified Health Center (FQHC)</li> </ul>
IT	<ul style="list-style-type: none"> <li>What are the current IT</li> </ul>	<ul style="list-style-type: none"> <li>VA internal</li> </ul>	<ul style="list-style-type: none"> <li>Veterans</li> </ul>

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Resource Category	Sample Questions	Data Sources	Example Search Terms
	<p>resources and capabilities that VA uses to provide access to care for Veterans?</p> <ul style="list-style-type: none"> <li>How do IT resources and capabilities vary across geographic regions and health care facilities?</li> <li>What are barriers and facilitators to achieving desired levels of IT resources and capabilities in VA?</li> </ul>	<p>reports and presentations</p> <ul style="list-style-type: none"> <li>PubMed</li> </ul>	<p>Administration and:</p> <ul style="list-style-type: none"> <li>IT</li> <li>Clinical video telehealth, VistA (Veterans Health Information Systems and Technology Architecture)/ Computerized Patient Record System (CPRS), data exchange, mobile apps, patient portal, MyHealtheVet</li> </ul>

### 2.3.2 Systematic Literature Reviews

We conducted systematic reviews to assess access, quality, and potential policy options. Systematic reviews follow very rigorous procedures and are intended to provide a comprehensive, in-depth review of the topic under consideration. For these reviews, we followed guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Statement (<http://www.prisma-statement.org/index.htm>). The key steps in these systematic reviews were developing the search strategy (see Table 2-3), selecting studies for inclusion in the review, abstracting data from the selected articles, assessing the quality of the evidence, and synthesizing the results.

**Table 2-3. Key Questions and Search/Inclusion Strategies Used in Systematic Literature Reviews**

Category	Sample Questions	Search and Inclusion Strategies
Access	<ul style="list-style-type: none"> <li>How accessible is VA care in each of the dimensions of access outlined by the Assessment B conceptual model of access?</li> <li>What are the</li> </ul>	<ul style="list-style-type: none"> <li>Search terms included: <ul style="list-style-type: none"> <li>Veterans and VA health care facilities</li> <li>access (defined as the availability of services)</li> <li>utilization (defined as the use of services)</li> </ul> </li> <li>Searched PubMed for articles between January 1, 2005, and April 10, 2015</li> <li>To be included, the article had to evaluate access to care and/or the relationship between access to care</li> </ul>

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Category	Sample Questions	Search and Inclusion Strategies
	facilitators and barriers to access to care in VA?	<p>and the utilization of services at VA facilities.</p> <ul style="list-style-type: none"> <li>Articles were classified according to characteristics of access outlined by the Assessment B conceptual model.</li> </ul>
Quality	<ul style="list-style-type: none"> <li>How does the quality of care provided by VA compare to that for non-VA health care facilities and systems?</li> </ul>	<ul style="list-style-type: none"> <li>Started with terms from prior systematic reviews on health care delivered in VA versus non-VA settings (Shekelle, Asch et al., 2010; Kehle, Greer, et al., 2011)</li> <li>Searched PubMed for articles between January 1, 2005 and January 1, 2015</li> <li>To be included, the article had to present a comparison of quality of care in VA and U.S. non-VA settings.</li> <li>If an article had been included in the previously published systematic review on quality in VA versus non-VA settings, the team used already abstracted data and reviewed the paper to ensure that all dimensions of quality were included.</li> <li>Articles were classified according to dimensions of quality outlined by the Institute of Medicine.</li> </ul>
Policy Options	<ul style="list-style-type: none"> <li>What are feasible policies or approaches to improving access to care to Veterans?</li> </ul>	<ul style="list-style-type: none"> <li>Searched PubMed for all English-language articles published from 1995 to present using a broad search strategy combining terms representing VA resources and capabilities and each of the types of VA health care resources shown in Table 1-1</li> <li>Also conducted separate targeted searches on policy options raised during key informant interviews, such as contracted care, DoD care, waitlists and scheduling, physician recruitment and hiring and overall access to care, as well as on articles written by specific authors suggested by advisory panel</li> <li>Searched gray literature for research and policy reports pertaining to timely and accessible care in VA</li> <li>Articles were abstracted for key findings and recommendations.</li> </ul>

Titles and abstracts identified through the search were screened by two team members trained in the critical analysis of literature. An article was selected for full-text screening when both team members agreed it should be included. When differences in the initial assessment (inclusion or not) occurred, the specific abstracts were discussed with at least one other senior member of the Assessment B team.

Each full-text article selected for screening was reviewed by two trained team members using screening forms designed for the review. To be included, the article had to meet inclusion criteria specific to each review. For each article that met the screening criteria, information was independently abstracted by two reviewers using an abstraction form.

Once the forms were completed, all the data were evaluated by the review team, and any discrepancies between reviewers were resolved. Each article was assigned an overall score, based on relevance and quality of statistical methods.

## 2.4 Interviews

Interviews with VA employees and others with VA expertise addressed questions that could not be answered with sufficient detail by literature review or analysis of quantitative or survey data. Interviews spanned a number of topics and research questions related to VA resources, capabilities, access, and quality, including:

- Types and levels of VA resources
- Barriers and facilitators to increasing levels of resources of different types
- Barriers and facilitators to using resources effectively to provide access to care
- Barriers and facilitators to Veterans' accessing VA care
- Perspectives on quality and access measurement
- Major challenges VA is facing in providing timely and accessible care to Veterans
- Policy options currently being considered and/or evaluated that might help improve VA's ability to provide timely and accessible care
- Feasibility of and potential obstacles to successfully adopting policy options.

### 2.4.1 Respondent Selection

**VA/Expert Respondents.** To identify specific offices or individuals within VA that could address the topics outlined above, we searched organizational staffing charts and senior personnel lists supplied by VA, as well as descriptions of the responsibilities of each office available in the 2014 Functional Organizational Manual v2.0a. We identified potential interviewees outside of VA through literature review. These included policy-makers, key stakeholders, and academic and other health care and public policy researchers who authored reports related to VA or health care issues germane to the evaluation of VA capacity.

**Facility Respondents.** All the topics listed above, with the exception of the policy options topics, required interviews with facility-level personnel. The respondent groups, by facility type, included:

- VA Medical Center (VAMC): Director, Associate Director, Associate Director of Patient Care Services, Chief of Staff, Quality Director, health care providers in seven specialties, paraprofessionals/clinical support staff such as care coordinators, social workers, medical support assistants

## Assessment B (Health Care Capabilities)

- Community-Based Outpatient Clinic (CBOC): Medical Director, nurse managers, health care providers in primary care, behavioral health, and obstetrics/gynecology)
- VISN: Chief Medical Officer, Quality Management Officer, Chief Information Officer.

We drew a purposive sample of VAMCs. We selected the sample to include a variety of facilities that, while not technically representative of the universe of VAMCs, would provide variation on key characteristics. We created six VAMC groups based on three characteristics: capacity, complexity, and metropolitan context. *Capacity* refers to the size of the facility, which was measured in terms of the number of patients served; *complexity* refers to the level of the VAMC's ability to treat a large number of conditions; and *metropolitan context* is the size of the urban area served. Additional information on how we defined these metrics can be found in Appendix A, Subsection A-2.

We began with a list of 150 VAMCs from a September 2014 extract from the VHA Site tracking System that was accurate when we began the selection process in January 2015.<sup>4</sup> We then eliminated some VAMCs from this list of the following reasons:

- Seventeen pairs of VAMCs coreported their statistics in the 2012 Hospital Quality Report Card. Because it was not possible to assign a specific number of visits to each VAMC, we elected to eliminate 17 VAMCs, one in each pair.
- We excluded one VAMC without capacity data available in a small/medium metro area.
- We excluded one VAMC that lacked information on its complexity level.

This left 131 VAMCs for consideration from the initial list of 150. Based on the three attributes, we grouped the VAMCs as shown in Table 2-4.

**Table 2-4. Capacity, Complexity, and Metropolitan Context of VAMCs Used in Selecting Interviewees**

<b>Complexity</b>	<b>Rural, Small- Capacity</b>	<b>Small/ Medium Metro, Small- Capacity</b>	<b>Small/ Medium Metro, Medium- Capacity</b>	<b>Small/ Medium Metro, Large- Capacity</b>	<b>Large Metro, Small- Capacity</b>	<b>Large Metro, Medium- Capacity</b>	<b>Large Metro, Large- Capacity</b>
Complex (1a–1c)	0	8	24	22	2	8	11
Less Complex (2–3)	20	23	9	0	4	0	0

<sup>4</sup> VA reclassified its medical facilities in March 2015. Other analysis in this report used these later classifications, which increased the number of VAMCs to 166. See Section 3.3.1.

## Assessment B (Health Care Capabilities)

<b>Complexity</b>	<b>Rural, Small- Capacity</b>	<b>Small/ Medium Metro, Small- Capacity</b>	<b>Small/ Medium Metro, Medium- Capacity</b>	<b>Small/ Medium Metro, Large- Capacity</b>	<b>Large Metro, Small- Capacity</b>	<b>Large Metro, Medium- Capacity</b>	<b>Large Metro, Large- Capacity</b>
Total	20	31	33	22	6	9*	11

Source: Authors' analysis of 2012 Hospital Quality Report Card, Veterans Affairs Site Tracking system extract from September 30, 2014, and American Community Survey.

Notes: \*One medium-sized VAMC in a large metro area was missing information on its complexity level. Blue-gray shading indicates groups from which VAMCs were selected for interviews.

We selected VAMCs from the groups shown above. The goal was to provide a distribution across the three categories of interest and to avoid smaller cells that include atypical VAMCs. Given the distribution of size and complexity across urbanization levels, we selected one VAMC from each of the following groups (shaded in Table 2-4):

- Rural, small, less complex
- Small-medium metro, small, less complex
- Small-medium metro, medium, complex
- Small-medium metro, large, complex
- Large metro, medium, complex
- Large metro, large, complex.

Of the 131 VAMCs, we eliminated 23 because they were not in the selected categories, and, to minimize the response burden on facilities, another 29 because they had already been selected for site visits by another Veterans Choice Act Assessment.<sup>5</sup> Due to overlap in these two categories, there were 84 VAMCs remaining to select from.

The final sample included two VAMCs per facility size category and a distribution across urbanization that is roughly proportionate to the distribution of facilities. We made the selection to account for geographic diversity. We also created ratios based on the 2012 report card of primary to specialty visits, and inpatient to outpatient visits, and we aimed for diversity in this regard as well.

We also contacted interviewees at the VISN level. We selected the VISN associated with each VAMC for interviews, unless the VISN was the subject of a site visit by another Veterans Choice Act Assessment (three VISNs). In those cases, the three remaining VISNs that were not subjects of site visits or interviews were substituted.

Finally, we selected one CBOC associated with each VAMC. When possible, we used the

---

<sup>5</sup> The number of VAMC site visits was later increased to 38, but this did not affect our selection.

Veterans Affairs Site Tracking data to identify those characterized as multispecialty CBOCs.

### 2.4.2 Protocol Development

We developed interview protocols that featured defined questions and then used elicitation techniques to provide respondents with space to offer rich answers and make connections on their own. These protocols allowed the team to focus the interviews on specific topics that matched the project goals without overly constraining and shaping respondents' answers.

Protocols were iteratively reviewed to ensure that the research questions were being covered. One to four question sets were targeted to each respondent group. Each protocol included an introduction describing the purpose and ground rules for the interview and covering verbal consent and confidentiality.

All RAND research that involves the acquisition of private, individual-level data are required to follow the common federal rule for the protection of human subjects. These guidelines are described in 45 Code of Federal Regulations 46 and in RAND's Multiple Project Assurance of Compliance (on file with the Department of Health and Human Services). The qualitative interviews underwent review by the Human Subjects Protection Committee, RAND's Internal Review Board. Our Internal Review Board submission included protocols, consent language, a recruitment email script, and a data safeguarding plan.

### 2.4.3 Interviews

For the expert interviews, we targeted 48 respondents and completed interviews with 38 respondents, representing a response rate of 79 percent. If the respondent consented, the interview was audio recorded and then professionally transcribed for analysis.

For the facility interviews, we targeted 88 respondents overall across the six VAMCs, six VISNs, and six CBOCs. Overall, we were able to identify individuals for the vast majority of respondent groups. We completed interviews with 61 respondents, representing a response rate of 69 percent. All facility interviews were conducted via telephone, usually with multiple interviewers or an interviewer and a note taker. If the respondent consented, the interview was audio-recorded and then professionally transcribed for analysis.

### 2.4.4 Analysis

Analysis was conducted using Dedoose, a commercial mixed-method, web-based data analysis platform. All interview transcripts were uploaded into Dedoose for thematic analysis. To identify and connect themes from across the interview data, we developed a coding structure for each domain. Domain-specific coding teams developed the coding structure based on the interview protocols and then dual-coded interview transcripts to establish coding reliability for that domain. The coding teams continued to develop codes and refine the coding structure as content was analyzed. Each domain coding team independently coded all transcripts with questions relevant to that domain. The overall code structure was continually revised through dialog within the qualitative team, particularly the team experts in the domain in question.



## 2.5 2015 Survey of VA Resources and Capabilities

The 2015 Survey of VA Resources and Capabilities was designed to identify clinically meaningful delays in care for the seven illustrative clinical populations chosen for Assessment B, and for primary care more generally. When survey respondents identified a delay in care, they were asked about the reasons for the delay and their proposed solutions. The survey was also designed to identify difficulties VA may be facing in recruiting, hiring, and retaining the clinical personnel necessary to provide care to Veterans in these populations.

The survey sample frame was all of VA's 141 administrative parents (local health care systems with at least one hospital and its affiliate clinics). The administrative parent within VA is defined as

a collection of all the points of service that a leadership group (Medical Facility Director, Deputy Medical Facility Director, Chief of Staff, Associate or Assistant Director, and Nurse Executive) manages. The points of service can include any institution where health care is delivered. All of the data that originate from these points of service roll up to a single station number representing the administrative parent for management and programmatic activities.

The invitation to participate in the survey was sent via email directly to the Chief of Staff of the administrative parent. The email included instructions, links to the survey modules, and a signed letter from Dr. Carolyn Clancy, VA Interim Under Secretary for Health, encouraging VA employees to assist the Veterans Choice Act assessments. The survey was a web-based survey with eight modules allowing each module to be completed independently. The Chief of Staff was responsible for completing the Chief of Staff module, identifying the most appropriate individual to complete each of the clinical condition modules, and overseeing the completion and return of all survey modules. The survey was in the field for approximately two and a half weeks from Thursday, May 7, 2015, through Tuesday, May 26, 2015.

Detailed survey methods and results are provided in Appendix B.

## 2.6 Data Sources and Measures

In addition to data collected through the literature reviews, interviews, and survey, Assessment B drew upon various other data sources and measures, as described briefly in this subsection. Information about the analyses conducted using these and other data are found in Subsection 2.7.

### 2.6.1 Resources and Capabilities

Data sources and the concepts that we measured to assess current resources and capabilities across domains are described in Table 2-5.

**Table 2-5. Data Sources and Measures for Assessing Resources and Capabilities (Other Than Literature Review, Interviews, Survey)**

<b>Resource Area</b>	<b>Data Sources</b>	<b>Concepts Measured</b>
Fiscal	<ul style="list-style-type: none"> <li>▪ Fiscal Year (FY) 2016 VA Budget Request</li> <li>▪ FY 2014 Veterans Equitable Resource Allocation Handbook</li> </ul>	<ul style="list-style-type: none"> <li>▪ Congressional appropriation</li> <li>▪ Allocation of funds to VISNs</li> </ul>
Workforce and human resources	<ul style="list-style-type: none"> <li>▪ Staffing and productivity data provided by Assessment G. including data collected from: <ul style="list-style-type: none"> <li>– VISTA New Person File</li> <li>– VISTA Patient Care Encounter File</li> <li>– Monthly Program Cost Report</li> </ul> </li> <li>▪ SK&amp;A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database</li> <li>▪ VA Planning Systems Support Group Enrollee file</li> <li>▪ VHA Support Service Center (VSSC) [See Strategic Analytics for Improvement and Learning Cube]</li> <li>▪ Medical Group Management Association Academic Survey</li> <li>▪ Medical Group Management Association Physician Compensation and Production Survey from Assessment G</li> </ul>	<ul style="list-style-type: none"> <li>▪ Supply of physician labor, by specialty</li> <li>▪ Supply of associate providers</li> <li>▪ Supply of therapists</li> <li>▪ Productivity</li> <li>▪ Location of non-VA providers</li> <li>▪ Timeliness of care</li> </ul>

## Assessment B (Health Care Capabilities)

Resource Area	Data Sources	Concepts Measured
Physical infrastructure	<ul style="list-style-type: none"> <li>▪ Veterans Affairs Site Tracking System</li> <li>▪ American Community Survey</li> <li>▪ American Hospital Association 2014 Annual Survey of Hospitals</li> <li>▪ VA Planning Systems Support Group Enrollee file</li> <li>▪ VHA Daily Bed Report, FY 2015</li> <li>▪ VA Veterans Transportation Program, 2015</li> <li>▪ HUD VASH Utilization Report</li> <li>▪ HUD 2014 Raw Housing Inventory Count</li> <li>▪ VA Surveys (Complementary and Alternative Medicine, Cardiovascular Specialty Care Services, Emergency Departments, Pain Management, Physical Therapy, Prosthetics and Sensory Aids Service, Recovery Oriented Mental Health Care, Surgical Services)</li> <li>▪ VA Clinical Inventory Facility Profile Report</li> <li>▪ VA Clinical Inventory Facility Services Report</li> </ul>	<ul style="list-style-type: none"> <li>▪ Number and distribution of VA facilities</li> <li>▪ Complexity of VA facilities</li> <li>▪ Availability of specific services and technologies related to illustrative clinical populations</li> <li>▪ Geographic access to VA facilities</li> </ul>
Interorganizational relationships	<ul style="list-style-type: none"> <li>▪ VA/DoD Medical Sharing Office</li> <li>▪ Fee Basis Claims System extract from Assessment I</li> <li>▪ VA Central Fee Payment extract from Assessment C</li> <li>▪ VA Budget Requests 2012-2015</li> </ul>	<ul style="list-style-type: none"> <li>▪ Amount and types of care purchased from DoD</li> <li>▪ Purchased care spending, utilization, and distribution</li> </ul>

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Resource Area	Data Sources	Concepts Measured
IT	<ul style="list-style-type: none"><li>▪ VSSC</li></ul>	<ul style="list-style-type: none"><li>▪ Access to IT capability</li><li>▪ Use of the capability</li><li>▪ Usability and user satisfaction</li></ul>

### 2.6.2 Access

We used a number of data sources to assess the five dimensions of access described in Section 1, Introduction (see Table 1-2): geographic, timely, financial, digital, and cultural. To identify performance measures, we conducted an environmental scan of access measures in VA performance measure reporting systems and publications, including the Strategic Analytics for Improvement and Learning Value Model (VA, 2014h), VA Hospital Compare ASPIRE (VA, 2014d), Linking Knowledge & Systems (VA, 2014c), the VA Facility Quality and Safety Report (VA, 2013d), and other published reports. Measures include system-level measures, such as the percentage of new patients who complete a primary care visit within 30 days of their preferred date, and patient-reported measures, such as the percentage of patients reporting that, in the past 12 months when they called for an appointment for care needed right away, they were always able to get an appointment as soon as needed. In addition, the team analyzed 2010–2014 data from the VHA Survey of Veteran Enrollees' Health and Reliance upon VA (Survey of Enrollees). The Survey of Enrollees is an annual survey of more than 40,000 enrolled Veterans designed to collect information on Veterans not available from other sources for the VA Enrollee Health Care Projection Model. Analyses of the Survey of Enrollees allow for assessment of Veterans' attitudes regarding each of the dimensions of access, such as the degree to which VA providers treat patients with respect (cultural access) and the degree to which VA offers Veterans the best value for their health care dollar (financial access).

Table 2-6 shows the data sources and access concepts that we measured. A full list of access measures by domain is found in Appendix A, Table A-3.

Table 2-6. Data Sources and Measures of Access

Access Domain	Data Sources	Concepts Measured
Geographic	<ul style="list-style-type: none"> <li>▪ VA Survey of Enrollees</li> <li>▪ Veterans Affairs Site Tracking System</li> <li>▪ American Community Survey</li> <li>▪ Esri v10.2 Business Analyst Extension</li> <li>▪ VA Planning Systems Support Group Enrollee file</li> <li>▪ VA Clinical Inventory Facility Profile Report</li> <li>▪ VA Clinical Inventory Facility Services Report</li> <li>▪ SK&amp;A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ease of getting to VA facilities</li> <li>▪ Travel distance</li> <li>▪ Travel time</li> <li>▪ Accessible by public transit</li> <li>▪ Veterans' perspectives regarding ease of getting to VA facilities</li> <li>▪ Proximity to non-VA providers</li> </ul>
Timely	<ul style="list-style-type: none"> <li>▪ VSSC</li> <li>▪ VA Survey of Healthcare Experiences of Patients Patient-Centered Medical Home (SHEP PCMH) Survey</li> <li>▪ VA Survey of Enrollees</li> </ul>	<ul style="list-style-type: none"> <li>▪ Timeliness of care for VA primary care, specialty care, and mental health care appointments</li> <li>▪ Wait times for appointments</li> <li>▪ Veterans' perspectives regarding timeliness of care, appointments and information</li> </ul>
Financial	<ul style="list-style-type: none"> <li>▪ Medical Expenditure Panel Survey</li> <li>▪ VA Survey of Enrollees</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cost of VA care</li> <li>▪ Out-of-pocket expenses</li> <li>▪ Lost work time</li> <li>▪ Veterans' perspectives regarding the value of VA care</li> </ul>
Digital	<ul style="list-style-type: none"> <li>▪ VA Survey of Enrollees</li> </ul>	<ul style="list-style-type: none"> <li>▪ Veterans' Internet access</li> </ul>
Cultural	<ul style="list-style-type: none"> <li>▪ VA Survey of Enrollees</li> </ul>	<ul style="list-style-type: none"> <li>▪ Veterans' perspectives regarding the degree to which VA personnel treat them with respect</li> </ul>
Cross-Cutting	<ul style="list-style-type: none"> <li>▪ Yelp reviews of VA facilities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Veterans' comments regarding experiences visiting VA facilities</li> </ul>

### 2.6.3 Quality

We selected a subset of measures for analysis from the more than 500 measures of quality available in the VA system. We prioritized quality measures that reflect national standards and are reported by national performance measurement programs, as follows:

- Measures in the Healthcare Effectiveness Data and Information Set (HEDIS) developed by the National Committee for Quality Assurance (National Committee for Quality Assurance, 2014) for care in the outpatient setting.
- Measures of patient experiences with health care received in the outpatient and inpatient settings from the SHEP. SHEP surveys are adapted from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) family of surveys (Agency for Healthcare Research and Quality [AHRQ], n.d.).
- ORYX measures (also known as the National Hospital Quality Measures) developed by the Joint Commission (Joint Commission, 2015) for care in the inpatient setting.
- Patient Safety Indicators developed by the AHRQ about adverse events and complications of care that may occur in the hospital (AHRQ, 2015).
- Thirty-day risk-standardized mortality and readmission measures developed by the Centers for Medicare & Medicaid Services (CMS) in conjunction with the Hospital Quality Alliance (CMS, 2014) for the inpatient setting.

Table 2-7 contains the data sources and concepts we measured to assess quality. A full list of quality measures can be found in Appendix A.

**Table 2-7. Data Sources and Measures of Quality**

	Data Sources	Concepts Measured
Safety	<ul style="list-style-type: none"> <li>▪ AHRQ Patient Safety Indicators (data from VA and CMS Hospital Compare for non-VA hospitals)</li> <li>▪ CMS Hospital Compare (data for VA and non-VA facilities) <ul style="list-style-type: none"> <li>○ Outcome measures</li> </ul> </li> </ul>	<b>Patient safety</b> <ul style="list-style-type: none"> <li>▪ Adverse events and complications</li> <li>▪ Inpatient outcomes</li> <li>▪ Readmission and mortality</li> </ul>

## Assessment B (Health Care Capabilities)

	Data Sources	Concepts Measured
Effectiveness	<p><b>Outpatient</b></p> <ul style="list-style-type: none"> <li>▪ HEDIS Outpatient Quality Measures (data from VA and National Committee for Quality Assurance reports for non-VA)</li> </ul> <p><b>Inpatient</b></p> <ul style="list-style-type: none"> <li>▪ CMS Hospital Compare (data for VA and non-VA facilities) <ul style="list-style-type: none"> <li>○ ORYX measures</li> </ul> </li> </ul>	<p><b>Outpatient</b></p> <ul style="list-style-type: none"> <li>▪ Screening, prevention, and wellness</li> <li>▪ Chronic condition management</li> <li>▪ Comprehensive diabetes care</li> <li>▪ Cholesterol management for patients with cardiovascular conditions</li> <li>▪ Antidepressant medication management</li> </ul> <p><b>Inpatient</b></p> <ul style="list-style-type: none"> <li>▪ Care processes for selected conditions (for example, acute myocardial infarction, pneumonia, heart failure, and surgical care)</li> </ul>
Patient-centeredness	<ul style="list-style-type: none"> <li>▪ VA SHEP PCMH (data from VA for outpatient experiences; no nationally representative non-VA data)</li> <li>▪ VA inpatient SHEP (data from VA for inpatient experiences)</li> <li>▪ CAHPS Hospital Survey (data from CMS Hospital COMPARE for non-VA hospitals)</li> </ul>	<p><b>Veterans' reports of outpatient care experiences</b></p> <ul style="list-style-type: none"> <li>▪ Communication with health care providers</li> <li>▪ Self-management support</li> <li>▪ Comprehensiveness of care</li> <li>▪ Helpful, courteous and respectful office staff</li> </ul> <p><b>Veterans' reports of inpatient care experiences</b></p> <ul style="list-style-type: none"> <li>▪ Communication with nurses and doctors</li> <li>▪ Responsiveness of hospital staff</li> <li>▪ Hospital environment</li> <li>▪ Care transition</li> </ul>

Note: Performance measure data did not allow for assessment of Institute of Medicine quality domains of timeliness, efficiency, or equity.

## 2.7 Data Analyses

Using the quantitative and qualitative data sources described in the previous subsections, we conducted analyses to assess VA's current resources and capabilities, the level and nature of access to VA care, barriers and facilitators to access, and, where possible, how VA compares with external benchmarks. We looked for and considered external benchmarks for each measure that we assessed. Cases in which we do not report a benchmark reflect one of three possible reasons. In some cases no external benchmark was found. In the others a benchmark was found, but the comparison was deemed invalid due to differences in the patient population

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

(for example, demographics, health needs, reliance on VHA) or in the way that care is delivered. The third possibility is that the benchmark comparisons were being carried out by another assessment (for example, Assessment G compares VHA physician labor supply and productivity to external benchmarks) and are reported elsewhere.

In this subsection, we briefly highlight the methods used in the analyses of VA Resources and Capabilities (Subsection 2.7.1), Access to VA Care (Subsection 2.7.2) and Quality of VA Care (Subsection 2.7.3).

### 2.7.1 VA Resources and Capabilities

#### 2.7.1.1 Fiscal Resources

Our primary method for assessing fiscal resources was a targeted review of the literature, with a particular focus on VA documents related to the budgeting and allocation process (see Subsection 2.3). The literature review was complemented by several descriptive quantitative analyses detailing the expenditures on Veterans over time, using publicly available data from catalog.data.gov. We collected qualitative information from facility leadership regarding problems with the allocation models and flexibility with funding. We conducted interviews with congressional experts on VA to understand how congressional priorities impact VA's overall allocation (see Subsection 2.4).

#### 2.7.1.2 Workforce

We used a number of measures to assess VA's health care workforce resources and capabilities. We developed descriptive data tables describing total workforce and productivity estimates for physicians, associate providers (for example, nurse practitioners, physician assistants, social workers, clinical nurse specialists), and therapists (for example, physical, speech, and occupational therapists). We generated reports for representative specialties, including those relevant for the illustrative clinical populations, that contain summary data at the facility level on physician workforce capacity and productivity within a given specialty. We also used wait-time data in combination with specialty-specific productivity estimates to identify facility-specialty combinations that may be particularly prone to capacity constraints.

We interviewed VA employees and others with VA expertise to gather information related to resources, capabilities, access, and quality. In particular, we asked about any provider number and productivity issues that may be causing capacity constraints at their facility. We supplemented these analyses with an extensive review of the literature (see Subsection 2.3).

**VA providers.** We measured the supply of the *specialty workforce* using full-time equivalent (FTE) counts for physicians, associate providers, and therapists. We used various FTE measures. For overall measures of FTE counts, we used "worked" FTEs, which does not include non-work-related paid time such as paid leave. For all other FTE measures, we used "clinical" FTEs which is a subset of worked FTEs calculating after removing non-clinical activities such as administration and research. We measured specialty physician and associate provider productivity using relative value units (RVUs), a commonly used method of counting health care output that weights each health care service for the time and other resources needed to



provide it. Because of the way RVUs are constructed, they are best used for comparisons within rather than across specialties. For therapists, we measured productivity in terms of the number of encounters per therapist clinical FTE. For *primary care*, we measured productivity of physicians by measuring “panel size” of primary care physicians, which we defined as the number of unique patients (by social security number) seen by each primary care physician per year. We also assessed variation in specialty care workforce supply and productivity and the extent to which various factors might affect workforce supply through changes in the recruitment and retention of various provider types. We also combined wait-time and productivity data to assess the source of potential capacity constraints (that is, insufficient FTE or productivity). For each of the seven illustrative clinical populations, we selected a subset of specialties that care for patients within the population and characterized facilities based on a measure of accessibility (measure of wait times for new patients) and productivity (RVU estimates). We used the wait-time variables to categorize each facility-specialty combination as having high or low wait times and described the distribution of these capacity constraints across facility-specialty combinations. We then used the findings from the literature reviews and interviews to identify specialties for which there are likely capacity constraints as well as potential causes of capacity constraints.

### 2.7.1.3 Physical Infrastructure

We identified and geocoded the locations of all VA health care sites: hospitals, VAMCs, health care centers, multispecialty CBOCs, primary care CBOCs, other outpatient services sites, extended care sites, and domiciliary residential care treatment programs. We also identified and geocoded the locations of Transportation Services and Veteran Housing Services.

We reported enrollee-adjusted size estimates (average daily number of patients per 10,000 enrollees) for each medical facility, aggregated at the VISN level. We also examined the number and distribution of sites by their complexity level. Each site has a range of capabilities. We identified and defined clinical care services that are definitive for one or more of the seven illustrative clinical populations described in Table 2-1. Table 2-8 lists an example of such services for TBI. A full list of 27 services and their definitions is provided in Appendix A (see Table A-2). To provide more detail about resources available for specific conditions, we report the number and distribution of sites that offer the services needed for the selected clinical populations.

**Table 2-8. Example of Condition-Specific Services for Traumatic Brain Injury**

Services	Definition
Polytrauma Support Clinic Team	An interdisciplinary team of health care providers who provide and coordinate rehabilitation services for patients with traumatically induced structural injury and/or physiological disruption of brain function as a result of an external force. Polytrauma support clinic teams also conduct comprehensive evaluations of patients with positive TBI screens, and develop and implement rehabilitation and community reintegration plans.
Polytrauma Network Site	Site that provides inpatient and outpatient rehabilitation care and coordinate polytrauma and TBI services throughout the VISN, generally with less comprehensive services than Polytrauma Rehabilitation Centers. (VA-specific term)
Polytrauma Rehabilitation Center (Program)	Regional referral center for the comprehensive acute rehabilitation for Veterans with complex and severe polytrauma. Polytrauma rehabilitation centers maintain a full staff of dedicated rehabilitation professionals and consultants from other medical specialties to address the complex medical and psychosocial needs of patients with polytrauma. These centers serve as a resource for educational programs and best practice models for other facilities across the polytrauma support clinic. (VA-specific term)
TBI Specialty Care	Specialty services designed for evaluation and treatment for patients with TBI.

Sources: All definitions, except for TBI, adapted from the VHA Handbook 1172.01, March 20, 2013. Definition for TBI provided by RAND experts.

To examine how VA facility locations, size, complexity, and service offerings may be related to delays in care, we interviewed 29 medical facility staff<sup>6</sup> and Veteran advocates about their experiences in the system. Interviewees were asked to describe how physical infrastructure is used in patient care. We asked about physical space, medical equipment and supplies, diagnostic capabilities, exam rooms, and inpatient facilities. We discussed the extent to which these parts of VA infrastructure are undersupplied, adequate, or oversupplied. Interviewees

<sup>6</sup> Interviewed staff included facility associate directors, chief medical officers, clinicians, and administrators.

were also asked to comment on strategies that could address under- or oversupply of physical infrastructure.

### **2.7.1.4 Interorganizational Relationships**

We used several measures to describe the extent of care provided through relations with non-VA entities. Measures of utilization included non-VA outpatient visits, mental health outpatient visits, and patients treated in non-VA inpatient settings compared with VA facility utilization. We also measured total VA spending on various categories of purchased care as well as care purchased from VA partners such as DoD and the Indian Health Service.

We performed a targeted literature search to obtain information on VA purchased care. In addition, the team reviewed qualitative information gathered from interviews conducted by Assessments B, C, and I, and responses to questions contained in the 2015 Survey of VA Resources and Capabilities regarding the use of non-VA medical care. This information provided additional context and detail regarding the various types of VA purchased care and the challenges associated with accessing, utilizing, coordinating, and reimbursing care.

### **2.7.1.5 IT**

We conducted a review of the academic and gray literatures to identify the full range of IT resources and capabilities in use at VA and any evaluations of their impact on timely and accessible care. We selected six capabilities as most relevant to Assessment B. Three of these are emerging modes of access: (1) telehealth (clinical video in particular), (2) patient portal (MyHealtheVet), and (3) mobile applications (limited to those that facilitate Veteran communication with VA). Two capabilities are hypothesized to be relevant to timely and accessible care via their relationship to efficiency of VA providers: (4) data exchange (including within VA, VA-DoD, and VA-private sector) and (5) core electronic health record functionalities (with a specific focus on the impact of usability). We also identified one capability (or class of capabilities) that we hypothesized is relevant to timely and accessible care by prevention, addressing the “demand” side of care: (6) care management (home monitoring in particular). We collected a variety of measures related to these capabilities.

We used interviews with stakeholders internal and external to VA to address the mechanisms by which the capability may affect timely and accessible care to Veterans, VA’s resources and capabilities to use the capability, and barriers to expanding use of and improvements to the capability. We led or participated in three different types of qualitative data collection efforts. First, we recruited for and conducted our own interviews with stakeholders inside and outside of VA. Second, we participated in facility-level interviews led and coordinated by the qualitative team. Third, we participated in interviews led and coordinated by Assessment H.

## **2.7.2 Access to VA Care**

### **2.7.2.1 Geographic Access**

We built a geographic information system (GIS) that would facilitate geographical analyses of VA resources and enrollees in 2013–2014, extending methods used in previous studies of

access to health care (Branas et al., 2005; Nallamothe et al., 2006; Klein et al., 2009; Culpepper et al., 2010; Concannon, Nelson, Goetz, & Griffith, 2012; Concannon, Nelson, Kent, and Griffith, 2013). A GIS links data by place and facilitates analyses that account for joint distributions of geographic, facility, population, and other data. Data are organized in a GIS by *layer group*, a capability that readily enables analysis in a variety of different geographic aggregations. The GIS was built in Esri's ArcGIS Version 10.2.

The primary outcome of the analysis is an estimate of the proportion of the enrollee population with access to VA and non-VA providers. Enrollees are Veterans who have signed up for the VA health care system.<sup>7</sup> We analyzed several different access standards, including a 40-mile straight line distance, 40-mile driving distance, 60-minute driving time, and 60-minute public transit time. All driving time analyses were adjusted in separate analyses for traffic slowdowns during rush hour travel in 101 metropolitan areas for which observed rush hour slowdowns are documented in the *2012 Urban Mobility Report* (Schrank, Eisele, & Lomax, 2012).

The team estimated the proportions of enrollees who have geographic access—according to each of these standards—to VA medical facilities with different levels of complexity and different capabilities. The VA system measures complexity of each administrative parent and its satellite VAMCs and CBOCs in six levels. The VA system also identifies specialized services and capabilities that are available to treat individual clinical populations; we looked at access to 27 of these services. These analyses focused on access to physical infrastructure, such as beds and clinical care space, and access to diagnostic and interventional medical technology, such as catheterization labs and coronary artery bypass graft suites for patients with acute coronary syndromes. In all analyses, we assessed variation in geographic access estimates by VISN.

We also estimated geographic access to purchased care for enrollees living outside the 40-mile driving distance boundaries around VA medical facilities. This assessment focused first on access to non-VA hospitals at three levels of complexity (academic, teaching, and community hospitals). Next, we focused this assessment on access to non-VA clinicians practicing in 12 clinical specialties.

### 2.7.2.2 Timeliness

We analyzed system-level measures of timeliness, including wait times for primary care, mental health care, and specialty care appointments, as well as Veteran reports regarding access to timely care, appointments, and information from the SHEP PCMH survey. We assessed timeliness of care in VA overall and compared across VA facilities. Nationally representative data for non-VA settings are not available for these measures. Therefore, we provide context for VA performance on these measures by presenting data on non-VA performance from the literature (for measures of wait time) and a public database (for SHEP measures).

---

<sup>7</sup> Not all enrollees have actually received VA health care, but we use enrollees as our primary means of distinguishing that group of Veterans who are eligible to access VA health care.

For each measure, we conducted descriptive analyses of the performance rates available at the facility level, noting the variation in performance across facilities nationwide. We summarized the distribution of each measure using the mean, minimum, maximum. Means reported in Section 4 were calculated as a simple unweighted mean of the facility-level means. A VA benchmark was calculated as the mean of the top 10 percent of VAMCs based on performance for each measure. This benchmark reflects the rate of performance on a given measure that has been shown to be achievable at 14 VA facilities. For measures related to wait times in the first half of FY 2015, we classified the performance of each facility into one of three categories relative to the benchmark: “near the benchmark” (within 0.5 standard deviation [SD] above or below the benchmark), “below the benchmark” (0.5 to 2.0 SD below the benchmark), or “far below the benchmark” (>2.0 SD below the benchmark).

The statistical significance of the difference between each pair of means for VA and non-VA facilities was tested using a t-test. We tested for statistically significant differences in SHEP PCMH scores on selected measures between VA hospitals grouped by their performance on wait times for primary care, specialty care, and mental health care, using t-tests for pairwise comparisons with Bonferroni adjustment for multiple comparisons.

For measures with rates available for more than one year, we created a descriptive time series and classified changes over time as improving, worsening, or remaining the same, using the Cohen’s d statistic as a measure of effect size to determine whether an improvement is large enough to be of interest after accounting for variability in the data. Cohen’s d is calculated by dividing the change over time in measure rates by the standard deviation of the rates in the earliest time period. As variability of a measure rate decreases relative to the magnitude of the change in measure rates over time, the magnitude of Cohen’s d increases, indicating a larger effect. According to Cohen (1988), no specific value or cutpoint indicates when an effect is significant or meaningful; however, he suggested three categories of effect magnitude: “small,  $0.2 \leq d < 0.5$ ,” “medium,  $0.5 \leq d < 0.8$ ,” and “large,  $d \geq 0.8$ .”

We analyzed data from the Survey of Enrollees regarding Veterans’ attitudes related to each of the dimensions of access, and analyzed online reviews of VA facilities to assess the relative frequency of comments related to access in each dimension.

The team analyzed five years of data (2010–2014) from the Survey of Enrollees to describe attitudes of Veterans related to access to VA care. We assessed the proportion of Veterans completely agreeing or agreeing with each question relevant to access over time, and by Veteran characteristics, including age, sex, race/ethnicity, income, employment status, insurance status, self-reported health, and priority group. To determine the degree to which observed changes over time were due to changes in the sociodemographic composition of Veterans, we also conducted multivariate logistic regressions predicting each question of

interest. Models included independent variables for all the Veteran characteristics noted above, as well as an indicator variable for each year.<sup>8</sup>

In addition, we analyzed narrative reviews of VA facilities submitted by users of the online rating website Yelp. Yelp reviews are posted voluntarily, and therefore may not be representative of the full population of Veterans; however, the reviews are useful for gaining perspectives from Veterans regarding barriers and facilitators to access to care at VA facilities. We identified VA facilities by their telephone numbers, combined duplicate Yelp entries for the same facility, and excluded reviews for nonmedical services offered by the facilities (for example, canteens or cafeterias). With permission from Yelp, we collected from the website full-text reviews posted between July 2007 and March 2015. One researcher read a subset of the reviews to identify thematic categories that reflect a concept or theme that could be present or absent in any particular review. We paid particular attention to the dimensions of access identified in the Assessment B conceptual model.

### 2.7.3 Quality of VA Care

We compared quality measures across VA facilities where available using the same methods used in analysis of timely access measures (Subsection 2.7.2.2). For each quality measure, we conducted descriptive analyses of the performance rates available at the facility level, noting the variation in performance across facilities nationwide. We summarized the distribution of each measure using the mean, minimum, and maximum. The performance rates for the quality measures reported in Section 5 and Appendix G tables were calculated as unweighted means of the facility-level means.<sup>9</sup> A VA benchmark was calculated as the mean of the top 10 percent of VAMCs based on performance for each measure. The statistical significance of the difference between each pair of means for VA and non-VA facilities was tested using a t-test.

For HEDIS quality measures for outpatient care, we compared VA performance rates with those for commercial, Medicaid, and Medicare health plans, as reported by the National Committee for Quality Assurance State of Health Care Quality Report (National Committee for Quality Assurance, 2015). The measures used by VA and the National Committee for Quality Assurance differ in some important ways (see Appendix A for details).

For ORYX quality measures for inpatient care (The Joint Commission, 2015), we compared VA performance rates between VA and non-VA hospitals as reported on the CMS Hospital Compare website. For other inpatient measures, we compared VA performance rates provided by VA (some measures) and on CMS Hospital Compare (other measures) with data for non-VA

---

<sup>8</sup> The Survey of Enrollees data collection modes changed in 2012. Our multivariate modeling did not explicitly account for this, but the trends we report are consistent in the time periods before and after 2012, suggesting that reported changes over time reflect true differences in Veterans' responses.

<sup>9</sup> The value of mean measure rates calculated for this report may differ slightly from means reported in VA publications for the same time period, due to differences in methods used to calculate the means. For this report, we calculated an unweighted mean of facility-level means, whereas VA calculates a national mean value for each performance measure based on patient-level data.

hospitals on CMS Hospital Compare. To ensure optimum comparability between VA and non-VA facilities in our analysis, we identified a subset of non-VA facilities with similar characteristics using data from the American Hospital Association (American Hospital Association, 2014). This dataset includes facility-level characteristics for 135 VA facilities and 6,332 non-VA facilities.<sup>10</sup> We analyzed measures for this report for which there were data available both for VA patients and the non-VA comparison groups. The full set of quality measures used in this assessment is shown in Appendix A, Subsection A.5.

To identify non-VA hospitals most similar to VA facilities, we conducted propensity score matching based on the predicted likelihood that a non-VA facility could be a VA facility given certain characteristics (covariates). Our approach for identifying matched non-VA facilities is described in Appendix A, Subsection A.5.2. For matching, we selected four facility characteristics most likely to differ between VA and non-VA hospitals, and shown to be predictive of performance on Hospital Compare measures (Lehrman et al., 2010): bed size (<100 beds, 100-199 beds, and 200+ beds), Census division (East North Central, East South Central, Mid-Atlantic, Mountain, New England, Other, Pacific, South Atlantic, West North Central, and West South Central), location (urban, rural),<sup>11</sup> and teaching status (teaching facility, nonteaching facility).<sup>12</sup> Three non-VA facilities were matched to each VA facility. After conducting propensity score matching, there were no significant differences between VA and the matched non-VA facilities for any characteristic in the model, indicating that the two sets of facilities were well matched. In estimating the results for VA and non-VA comparison groups, if a VA hospital had a missing value for a measure, the non-VA hospitals matched to that hospital were excluded from the analysis of that measure. In addition, if one of the matched non-VA hospitals had a missing value for a measure, the remaining two non-VA hospitals were “up-weighted” by a factor of 3/2 or 1.5, and if two of the matched non-VA hospitals had a missing value for a measure, the remaining hospital was “up-weighted” by a factor of 3. Results are presented for comparisons of VA facilities and non-VA hospitals overall. Appendix A, Subsection A.5.2 provides additional detail regarding the propensity score matching methods.

---

<sup>10</sup> Seven of 135 VA facilities in the American Hospital Association could not be matched to the CMS Hospital Compare file, and were therefore not included in the analysis of CMS Hospital Compare measures (see Appendix A, Subsection A.5.2 for more detail).

<sup>11</sup> Facilities are categorized as urban or rural based on the American Hospital Association definition: “A rural hospital is located outside a Metropolitan Statistical Area (MSA), as designated by the U.S. Office of Management and Budget (OMB), effective June 6, 2003. Urban hospitals are inside Metropolitan Statistical Areas.”

<sup>12</sup> Teaching facilities are defined to include major and minor teaching hospitals, with a major teaching hospital having a Council of Teaching Hospitals designation and a minor teaching hospital having another teaching hospital designation. Facilities without a teaching hospital designation were classified as nonteaching facilities.

## **2.8 Policy Analysis**

### **2.8.1 Developing Policy Options**

To identify and evaluate potential policy options for improving VA's ability to provide timely and accessible care to Veterans, we used a multipronged analytic approach combining data from a systematic literature review, key informant interviews, and quantitative analyses projecting the impact of various policy scenarios on access, with ongoing input and guidance from a panel of in-house advisors with expertise in VA health care delivery research and operations.

First, in consultation with our in-house advisory panel, we established a framework of potential policy options based on 1) their primary objective to enhance timely access to care either within VA or outside VA and 2) the approach to achieving the stated objective, either by modifying the amount and/or type of resources utilized or by increasing the productivity of existing resources.

Second, we established the criteria for evaluating policy options. We began with a standard set of evaluation criteria, which we refined for saliency to current VA context through an iterative process using data from key informant interviews, a systematic literature review, and input from our advisory panel. Our final set of evaluative criteria included impact on access, fiscal impact, stakeholder acceptability, and operational feasibility. Additional information about how we refined our evaluation criteria is found in Appendix A (see Subsection A-6.1).

Third, we identified a set of potential policy options for improving VA's ability to provide timely and accessible care to Veterans through the systematic literature review. The literature review approach is described above in Table 2-3 and in Appendix A (see Subsection A.6.2). We used this initial set of options as a starting point for developing a final list of policy options and iteratively added, removed, and modified options as further information was collected through the key informant interviews and advisory panel guidance.

Finally, we applied the evaluation criteria to each of the final policy options. We excluded from our final list policy options that (1) were infrequently raised during interviews, or (2) were expected to face significant challenges with respect to at least two of the evaluation criteria. We used the evaluation criteria to compare and contrast items on the final list of selected policy options in order to provide context for their viability as an approach to improving timely and accessible care in VA.

### **2.8.2 Projecting Future VA Resources and Capabilities**

We projected the amount of health care services supplied under several scenarios and compared these figures to projected demand from VA's Enrollee Health Care Projection Model (EHCPM). The demand projections have some limitations (described in Section 6), but are used in VA planning. Assessment A projects how factors affecting demand, such as the size and composition of the Veteran population and their unique health care needs, will change over time, but does not provide estimates of the demand that VA will face. Still, the estimates from A provide useful context for interpreting and assessing the EHCPM demand estimates. The



results from Assessment A indicate that the number of VA patients is expected to rise slowly through FY 2019 and then begin to decrease. This is consistent with the increases in demand projected by the EHCPM through FY 2019. However, based on results from Assessment A, we expect to see decreases in demand after FY 2019.

In the first supply scenario, the projection accounts for changes in the number of VA providers based on historical trends but assumes no changes in productivity between FY 2014 and FY 2019. This projection indicates how the growth in VA provider supply would need to differ from historical growth rates to meet the demand EHCPM projects if there were no other changes that affect productivity. The second supply scenario projects the health care services supplied, accounting for changes in the productivity of existing resources, holding the provider supply constant between FY 2014 and FY 2019. This projection provides an estimate of the effect of productivity changes alone with no changes in the amount of resources. In the third supply scenario, we allow both the number of providers and their productivity to change.

Under supply scenario one, we forecasted the number of provider FTEs, given historical trends, for each specialty and administrative parent combination. We estimated a time series regression model using FTE data from the VA Productivity Cube for FY 2008 through FY 2014. We then compared the percentage growth in FTEs between FY 2014 and FY 2019 to the percentage growth in projected demand from the EHCPM over the same time period. If the difference in the growth rate is large, it is more likely that VA will have difficulty meeting projected demand under this scenario. For example, if, from FY 2014 to FY 2019, an administrative parent has a 10-percent increase in cardiology FTEs and a 15-percent increase in cardiology demand RVUs, the growth in projected demand would exceed the growth in projected supply and thus could point to a potential gap in the future.

For supply scenarios two and three, we estimated how much additional supply can be created through improved productivity (that is, RVU per FTE). For supply scenario two, we estimated how much additional supply can be achieved in FY 2019 over realized supply in FY 2014 if low-productivity providers increase their productivity (holding the number of FTEs constant). We created benchmarks that represent realistic productivity levels that could be achieved in VA system. To do this, we analyzed FY 2014 variation in services provided at each administrative parent in each specialty (measured as RVUs per provider FTE). We identified the 25th, 50th, and 75th percentiles of the distributions of productivity for each specialty. We then projected the effects of increasing productivity of existing resources at all administrative parents to at least the level of the 25th, 50th, and 75th percentile of the FY 2014 distribution for each specialty:

- **Productivity Level 1:** All administrative parents operate at least at the FY 2014 25th productivity percentile within each specialty nationally
- **Productivity Level 2:** All administrative parents operate at least at the FY 2014 50th productivity percentile within each specialty nationally
- **Productivity Level 3:** All administrative parents operate at least at the FY 2014 75th productivity percentile within each specialty nationally.

In scenario three, we projected the effect on supply of an increase in the productivity of low-productivity providers in combination with the forecasted change in FTEs.

We also analyzed several hypothetical policy options that explore how the projected demand for FY 2019 might be met through better matching demand RVUs to capacity FTEs without adding additional FTEs. These policy options involve either redistributing the demand geographically through a mechanism such as telehealth, or redistributing the supply through targeted layoffs and hiring or incentivizing current providers to relocate. To project this option, we assessed how many RVUs would be gained for each specialty if all administrative parents were performing at or above the current 25th, 50th, and 75th percentile of RVU/FTE for each specialty. We then compared this gain in RVUs to the projected increased demand of RVUs from FY 2014 to FY 2019 from the EHCPM. We calculated this change in RVUs as a percentage of the sum of the total FY 2014 RVUs and the proposed RVU gain. This percentage reflects the proportionate amount of care that would be redistributed to achieve the 75th percentile performance on RVUs/FTE across all administrative parents.

## 2.9 Section Conclusion

This section has provided a high-level discussion of the following methods used in Assessment B:

- **Illustrative clinical populations:** We selected seven illustrative clinical populations to provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans, and to supplement analyses of VA as a whole.
- **Literature reviews:** We conducted several literature reviews to provide background and context for the assessment. For each type of resource (for example, fiscal, physical infrastructure), we conducted a targeted literature review to identify information about current levels, trends over time, and key issues and concerns. We also conducted formal, in-depth systematic literature reviews to assess the evidence related to access, quality, and potential policy options for enhancing VA's resources and capabilities.
- **Interviews:** We conducted interviews with VA employees and others with VA expertise to address questions that could not be answered with sufficient detail by literature review or analysis of quantitative or survey data. Interviews spanned a number of topics and research questions related to VA resources, capabilities, access, and quality.
- **2015 Survey of VA Resources and Capabilities:** The 2015 Survey of VA Resources and Capabilities was designed to identify clinically meaningful delays in care for the seven illustrative clinical populations chosen for Assessment B, and for primary care more generally. The survey also sought to identify difficulties VA may be facing in recruiting, hiring, and retaining the clinical personnel necessary to provide care to Veterans in these populations.
- **Data sources and measures:** Assessment B drew upon numerous data sources and measures to assess current resources and capabilities across domains, to assess the five dimensions of access, and to analyze the quality of care available in the VA system.
- **Data analyses:** Using both quantitative and qualitative data sources, we conducted analyses to assess VA's current resources and capabilities, the level and nature of access

to VA care, barriers and facilitators to access, and, where possible, how VA compares with external benchmarks.

- **Assessing options for enhancing VA resources and capabilities:** We developed a method for projecting future resources to compare with forecasted changes in patient demand for VHA treatment to identify potential gaps. We used a multipronged approach to identify and analyze a reasonable range of feasible policy options to enhance VA's ability to provide timely and accessible care to Veterans.

In the following sections, we will show the results of the analyses we performed using these methods. Additional information about the methods can be found in Appendix A.

This page intentionally left blank.

### 3 Assessment of VA Resources and Capabilities

VA is a unique, extensive health care delivery system with a large number and variety of resources and capabilities at its disposal. VA's estimated FY 2015 budget for health care is about \$60 billion, and the FY 2016 advanced request is \$63 billion. VA includes 144 hospitals, approximately 700 outpatient clinics, more than 30,000 employed physicians, and more than 25,000 associate providers and therapists. VA is unique in both its scope and its roles. In terms of scope, no other U.S. health care system has a comparable geographic reach and diversity of health care resources.

Primary among VA's roles is direct health care service delivery to the more than 9 million Veterans enrolled for VA health care (2.8 percent of the U.S. population). However, VA does not provide care for all Veterans, or even all enrollees; 42 percent of Veterans are enrollees, and 64 percent of enrollees are users of VA health care. Among users, while some receive all of their health care from VA providers, others have coverage through health insurance such as Medicare, Medicaid, or private coverage. VA estimates that current VA users get, on average, about 21 percent of their total physical medicine visits from VA, 38 percent of their emergency room visits from VA, and 66 percent of their prescriptions from VA.

VHA operates several dozen specialty programs and "Centers of Excellence" largely focused on clinical topics of special importance to Veterans (e.g., the War Related Illness and Injury Study Center). While the organization and mandates vary by topic, both the programs and centers are generally based in VAMCs and offer patient care as well as conduct research and do outreach to both patients and health care providers. Many operate as "hub-and-spoke" systems with the centers serving as hubs and having relationships with other VA medical facilities. For example, there are 16 Epilepsy Centers of Excellence and several dozen other medical facilities that belong to the National VA Epilepsy Consortium.

VA also performs roles other than direct patient care that contribute to its unique position. These roles include health care training and graduate medical education, research, and national security emergency support.

In this section, we examine the resources and capabilities that VA currently has at its disposal to generate the supply of health care services available for Veterans. As described in Section 1, we categorize the resources and capabilities into five broad domains:

- Fiscal resources
- Workforce and human resources
- Physical infrastructure
- Interorganizational relationships
- IT.

For each domain, we describe the current level of resources and capabilities, as well as barriers to using them effectively. Where possible, we also describe variation in the level of resources and capabilities across VISNs and administrative parents. In a small number of cases, we are able to compare VA resources and capabilities against external benchmarks to provide a sense

of where VA stands relative to the private sector. In most cases, however, the differences between VA and other health care systems and the populations they serve make such comparisons difficult to interpret and thus of limited value.

### 3.1 Fiscal Resources

Fiscal resources are critical to VA's current and future ability to provide accessible, high-quality care. As described in Section 1, fiscal resources constitute the revenue stream or funding mechanisms for the organization. Meyer, Davis, and Mays (2012) describe a variety of measures for analyzing fiscal resources, including overall budget and sources of revenue, as well as expenditures such as per capita spending. A higher level of financial resource is not necessarily an indication of better performance on health outcome measures, since financial resources contribute to an organization's ability to acquire or develop other resources and capabilities such as hiring staff, funding programs, or acquiring physical infrastructure (Mays et al., 2009).

In this subsection, we examine VA's financial resources in two ways:

- Assess the budget development process and how it is affected by congressional priorities.
- Consider how funds are allocated to facilities and identify any problems with the allocation process as well as other constraints on the funding process that prevent facilities from using money effectively.

The first approach we use for assessing VA fiscal resources is to examine the VA budgeting process. As described below, there are indications that VA develops its medical services budget from older data and that there can be problems with the assumptions used in this process. Medical administration, facilities, and IT budgets are developed through separate processes.

We also consider how congressional priorities affect the VA budget. Congress appropriates VA's budget as a nondefense discretionary program; thus, congressional priorities can influence both the level of money available and the way VA chooses to spend the money once allocated. Funding for other large federal health programs differs in important ways from the VA health program. Medicare is considered an entitlement program; funding is provided from the Medicare Trust Fund, spending is mandatory, and the program's annual cost has no formal budget constraint. TRICARE funding is included in the DoD appropriation and is therefore discretionary, but the benefit is well defined, and DoD must cover any costs incurred beyond the appropriated funding. Congressional priorities can also direct money away from the overall budget for patient care toward specific programs through the special purpose funds. According to interviewees at VA medical facilities, these "silos" of money can make it difficult for facilities to efficiently make use of their entire budgets in any given year.

A second approach we use to assess VA's fiscal resources is to examine how VHA's own allocation process affects the level of resources available across regions. VHA's allocation process can cause difficulties for particular facilities because the allocation method also uses data from several years prior to the actual allocation year, although the allocation method is different from the method used to create the budget projections. Allocations for items such as facilities and IT can also affect the facility-level spending process. We also consider other

funding constraints identified by facility leaders that they believe limit their ability to use resources effectively.

In addition, we discuss whether we can use comparisons of the level of spending that results from the budgeting and allocation processes to private-sector spending to assess whether VA's total level of financial resource is adequate. While in theory such comparisons would be useful, as will be discussed below, in practice the differences in the patient population and the way care is delivered between VA and the private sector make comparisons of per capita spending difficult to interpret and thus of limited value.

A summary of the methods used in these analyses is shown in the box.

### Overview of Methods and Data for Assessment of Fiscal Resources

- To assess VA's budget process, we conducted a targeted literature review of VA documents, government reports, peer-reviewed literature, and recent congressional testimony. Data sources included the FY 2016 VA Budget Request and FY 2014 Veterans Equitable Resource Allocation Handbook.
- The literature review was complemented by several descriptive quantitative analyses detailing the expenditures on Veterans over time, using publicly available data from [catalog.data.gov](http://catalog.data.gov).
- We also interviewed VA leadership in the VA Central Office and in facilities for their perspectives on the budget and allocation processes.
- For complete details of the methods used to assess fiscal resources, please refer to Section 2 of this report.

### 3.1.1 VA Budget for Health Care

VA is funded through annual congressional appropriations. Most VA funds are budgeted through *advance appropriations*, which are typically designated one or more years in advance of the time the funds become available. The intent of advance appropriations is to give VA additional time to plan spending. *Regular appropriations* act as supplements to fund unexpected needs that arise (Panangala, 2014).

As with other federal departments, budget planning for VA starts roughly 18 months before the appropriation decision by Congress. The agency develops a budget request using the EHCPM, described in greater detail below. The budget is then sent to the Office of Management and Budget for review, and then submitted to Congress as part of the President's budget in January, nine months before the beginning of the fiscal year. Congress holds budget hearings during the spring months and develops an appropriations bill giving federal agencies the authority to spend the specified funds. In recent years, passage of the appropriation bill containing VA health care funding has generally been delayed, necessitating a continuing resolution that freezes spending at the prior year level and precludes spending on new programs.

VA's budget for the variable costs of outpatient and inpatient care is formulated using the EHCPM, which projects the estimated demand and cost for services. The budget includes funding for medical staff, supplies, and equipment. EHCPM was first introduced in 1998 to

support the forecasting of Veteran health care enrollment as mandated by the Veteran's Health Care Eligibility Reform Act of 1996 (Congress, 1996). For FY 2016, the model projects about 90 percent of the health care budget (VA, 2015a). The remaining 10 percent consists of several categories of services that are modeled separately from the EHCPM. For example, capital planning and some IT services are planned centrally for VA through a separate process. There are several additional programs not budgeted through the EHCPM, including the Civilian Health and Medical Program Veterans Administration, which provides care to widows, spouses, and dependents of some Veterans, and purchased care, which allows Veterans to use private providers under some circumstances (Panangala, 2014).

Congress approves the overall VA budget, adjusting it up or down. In an unusual step, Congress, in passing the Veterans Choice Act in 2014, provided additional funds through an appropriation to be spent over three years on purchased care for certain Veterans unable to get care in VA facilities. During the typical appropriations process, members of Congress can influence VA priorities by highlighting the need for specific medical services or programs during budget hearings. After VA proposes a budget based on its projected needs, Congress approves the budget or a modified version of it, VA then allocates the money to the VISNs and the VISNs further allocate funding to facilities (discussed in Subsection 3.1.2).

### 3.1.1.1 Budget Process

As noted above, the EHCPM is VA's main budgeting tool and is used to project the demand for medical services. The EHCPM consists of three submodels: the Enrollment Projection Model, the Utilization Projection Model, and the Unit Cost Projection Model, all of which we describe below (GAO, 2011b; Milliman, Inc., 2014). The results of the Enrollment and Utilization Projection Models are combined to generate an estimate of the quantity of medical services that enrollees will want to obtain from VHA (that is, the quantity of medical services demanded), annually for 10 years. The Unit Cost Projection Model is then used to translate the quantity of services demanded into an estimated cost of delivering those services in each year.

**Enrollment Projection Model.** This model divides the Veteran population into enrolled and non-enrolled pools and then calculates new enrollment by applying the historical enrollment rate to the non-enrolled pool. In any fiscal year, expected enrollment is equal to current enrollment plus net new enrollment. Age, VA benefits eligibility, geographic area, and special conflict status are the four main demographic characteristics used to calculate the enrollment rates.

**Utilization Projection Model.** This model uses utilization data from the recent prior time period for a variety of service categories (Harris, Galasso, & Eibner, 2008). Milliman estimates utilization rates by compiling utilization data from a variety of sources, including VA, Medicare, and commercial claims databases. Utilization rates for the approximately one-half of VA users who are age 65 or older are developed from combined VA and Medicare data for this population. Utilization rates for younger users are adjusted from Milliman's proprietary rates based on commercial health plan data. The adjustments reflect differences in the VA population compared with the general population (which obtains health care from the private sector). The model determines a VHA-specific utilization rate by service, which is then applied



to the projected average number of enrollees. The utilization projection also incorporates variation according to geographic location, benefits, age, gender, morbidity, and reliance on VA health care versus other sources of care to which enrollees have access.

**Unit Cost Projection Model.** The third submodel derives detailed VA unit costs on the basis of VA's Decision Support System direct costs, Medicare-allowable charges, and charges non-VA providers bill VA in various health care services categories. The derivation also involves a comprehensive set of adjustments to account for the characteristics of VA health care services and case-mix. Total projected expenditures in a given projection year are obtained by multiplying the estimated enrollment, utilization rate, and unit costs.

**Concerns about the EHCPM.** A number of concerns have been raised about the EHCPM. The model is proprietary and highly complex, so it is difficult to evaluate (Harris, Galasso, & Eibner, 2008). Substantial and detailed adjustments are required to adapt commercial health plan utilization data to the VA enrolled population under age 65, who have different health needs and use VA for only some of their health care. Assessment A discusses these problems in further detail. The utilization rates for Medicare-age enrollees, which are measured from data on utilization of VA and other providers through Medicare, are more directly tied to actual service use by this population.

VA constructs unit costs based on a combination of VA's Decision Support System financial data for services VA provides that others do not (such as some mental health or special prosthetic programs). VA uses Medicare or community payment rates for some of the more granular levels of detail. The average cost for a given service goes through a variety of adjustments to account for geographic location or to reflect the additional needs of sicker patients. Harris, Galasso, and Eibner (2008) found that the unit cost approach does not take into account the true marginal cost of increased utilization, which would have to include whether there was enough space for staff to see more patients, or whether more expensive equipment would be needed.

The EHCPM also uses available data to project forward several years into the future. VA uses separate trend adjustments to account for changes in medical inflation and utilization rates for particular services. Since projections are based on the current allocation, the amount budgeted and subsequently funded will be adequate only if the current budget is adequate and the assumptions used to estimate trends are correct. Otherwise, it may take several years for the errors to be recognized. For example, among those who have other insurance, reliance on VA for services can vary over time, and major U.S. policy changes, such as the 2010 Patient Protection and Affordable Care Act, can impact reliance on VA if there is a resulting increase in the number of younger Veterans with other insurance.

Assessment A analyzed data on the Veteran population, enrollment, and use of VA health care and developed projections through 2024. For many years, VA has seen a steady trend upward in the number of Veterans enrolling and using VA health care, even while the total Veteran population has steadily decreased. If this upward trend continues at a steady rate, EHCPM will account for this trend appropriately. However, if the trend accelerates (as it did in the years before and after 2000), the budget projection will fall short of what is needed to maintain access. The analysis in Assessment A identifies reasons for uncertainty in projecting the number

of users in future years, but concludes that the upward trend is likely to end in the next decade. In this case, future budget requests are less likely to fall short of requirements.

**Facilities capital improvements and IT budgets.** These items are budgeted separately from the EHCPM, often using prior trends to budget for major line items, such as facility maintenance and administrative costs. Budgeting these items separately means the needs of facilities in terms of having a completed building lease in which to house new staff may not be completed in a coordinated fashion (GAO, 2011b). The facilities capital improvements budget is developed through the master plan, which includes major and minor construction projects and nonrecurring maintenance projects such as renovation of existing facilities. Recurring maintenance is part of the overall medical care budget and includes funding for maintenance, engineering services, linen cleaning, etc. The IT budget is developed for the whole VA through the board of the Office of Information and Technology (Department of Veterans Affairs, Office of Information and Technology, 2014).

Assessments K and H discuss the budgeting process for facilities and IT, respectively, in greater detail. Assessment H found that VA should revise the planning and budgeting process to ensure business needs are effectively identified, prioritized, and funded and used to drive IT investments. Assessment K found that there is a shortfall between the actual budgeted amount and the amount needed to adequately maintain older buildings, and this gap is projected to widen over time. Assessment K also found that VA could more efficiently use existing space by outsourcing facility maintenance or operating administration.

**Payments from third-party payers.** VA gains a small portion (approximately 5 percent, or \$3.2 billion, of the \$63 billion for FY 2016) of its budget through collections from third-party payers for non-service-connected care at VA facilities and copayments for various services (VA, 2015a; VA, 2014e). VA is mandated to cover the costs of care provided to Veterans with disabilities rated at 50 percent or higher, to certain other groups of Veterans, and for service-connected medical conditions. The Balanced Budget Act of 1997, however, authorized VHA to bill private insurers and collect copayments for non-service-connected care. This collection is deposited to the Medical Care Collections Fund to cover expenses for providing the medical care with no fiscal year limit.

VA is prevented by law from billing Medicare (fee-for-service or Medicare Advantage plans), the main source of other insurance for Veterans (VA, 2015a).<sup>13</sup> Since Medicare Advantage plans are paid a capitated rate for providing care to all enrollees, the government is paying twice for the same services when Veteran enrollees instead use VHA. A study found that half of the Veterans enrolled in both VA and Medicare Advantage plans used both systems to access care (Trivedi et al., 2012).

There are various initiatives within VHA to improve the collection of both copayments and payments from third-party payers—issues that Assessment I describes further. The process has

---

<sup>13</sup> VA, however, is allowed to bill private supplemental insurers (“Medigap” plans) for non-service-connected medical care.

not always gone smoothly. A 2004 GAO report studied the costs associated with collecting payments from third-party payers for the Medical Cost Collections Fund (GAO, 2004a). The report found that many VISNs underreported the cost of collecting these claims. The report recommended that VHA improve the uniformity of the collections process by issuing guidelines concerning which costs associated with collections should be reported.

### 3.1.1.2 Current Funding Level

The FY 2016 advanced appropriation includes \$49 billion for medical services, \$6.2 billion for medical support and compliance, \$5.0 billion for medical facilities, and \$3.2 billion in collections (VHA, 2015a). Table 3.1-1 details the major operations categories and the estimated budget for 2015 along with either revised requests or advance appropriation amounts for FY 2016 and FY 2017. For FY 2016, the advanced appropriation of \$63.1 billion is a 7-percent increase above the FY 2015 enacted level. The advanced appropriation is a request, and the level of funding is dependent on Congressional approval.

**Table 3.1-1. Major Categories of VA Budget Allocation (in Millions)**

Fund Account	2015 Request	2016 Advance Approp.	2016 Revised Request	2017 Advance Approp. Request
Medical Services	\$45,383	\$47,603	\$48,727	\$51,673
MCCF Collections	\$3,048	\$3,253	\$3,227	\$3,300
Medical Services (with collections)	\$48,431	\$50,856	\$51,954	\$54,973
<i>Less: Veterans Choice Act</i>	<i>(\$740)</i>	<i>N/A</i>	<i>(\$1,573)</i>	<i>N/A</i>
<b>Subtotal</b>	<b>\$47,691</b>	<b>\$50,856</b>	<b>\$50,381</b>	<b>\$54,973</b>
Medical Support & Compliance	\$5,880	\$6,144	\$6,214	\$6,524
<i>Less: Veterans Choice Act</i>	<i>(\$11)</i>	<i>N/A</i>	<i>(\$17)</i>	<i>N/A</i>
<b>Subtotal</b>	<b>\$5,869</b>	<b>\$6,144</b>	<b>\$6,197</b>	<b>\$6,524</b>
Medical Facilities	\$4,739	\$4,915	\$5,020	\$5,074
<i>Less: Veterans Choice Act</i>	<i>(\$1,017)</i>	<i>N/A</i>	<i>(\$775)</i>	<i>N/A</i>
<b>Subtotal</b>	<b>\$3,722</b>	<b>\$4,915</b>	<b>\$4,245</b>	<b>\$5,074</b>
<b>Total</b>	<b>\$59,639</b>	<b>\$61,915</b>	<b>\$63,810</b>	<b>\$66,571</b>
<b>Total, less Choice Act</b>	<b>\$57,871</b>	<b>\$61,915</b>	<b>\$61,445</b>	<b>\$66,571</b>

Source: Reproduced from the FY 2016 VA budget request (VA, 2015a).

Note: The estimates for the Choice Act do not include some funds for IT and facilities, so the total does not add to \$5 billion.

The Veterans Choice Act is expected to affect spending in several areas, including medical services and facilities. The Veterans Choice Act allocated \$5 billion for VA to use in directly providing medical services, including hiring more than 9,600 new providers in primary care, specialty care, and mental health care.<sup>14</sup> The breakdown of part of the \$5 billion is shown in Table 3.1-1, in the form of subtractions (substitutions) from the 2015 and 2016 budgets. The Act also allocated \$10 billion to be spent on private-sector health services. If the Veterans Choice Act increases demand for purchased care, meaning that some Veterans access services through the community that they would otherwise have accessed through VHA, this may transfer additional spending from VA's existing budget. The estimates of the transfer amount range from \$452 million to \$733 million in 2017 (VA, 2015a). However, these estimates are uncertain, as the number of Veterans who will ultimately access the program is unknown.

Spending on additional resources for VA care funded by the Veterans Choice Act will need to be incorporated into budget requests for FY 2018, which are now being developed for inclusion in the President's 2017 Budget. The additional funds for the Veterans Choice Cards were not funded through the regular appropriations process. As a result, it is unclear how the overall budgeting process will be affected after these funds are exhausted. The Congressional Budget Office estimated that the increase in VHA spending would be approximately \$42 billion over the 2014–2017 period, derived from both the additional ability of Veterans to use purchased care and the money allocated to hire additional staff within VHA (Congressional Budget Office, 2014).

### 3.1.1.3 Congressional Priorities and Their Impact on the Budget

The GAO has stated that, "Budgeting is and will remain an exercise in political choice, in which performance can be one, but not necessarily the only, factor underlying decisions" (GAO, 2002b). Congressional priorities can affect the budget both through the overall level of appropriation and by authorizing extra spending, as was done with the Veterans Choice Act. Hearings also give Congress the opportunity to emphasize certain programs or to raise or address constituent concerns. Ultimately, because VA is one of many federal departments, the funding for VA is affected not only VA's request and congressional priorities for VA, but also the needs of other departments and programs included in the federal budget.

**Recent areas of concern.** For the 113th and 114th Congresses, the major areas of recent concern in terms of medical services are access (both wait times for appointments and travel distance), quality of and access to behavioral health services, and the ability of VA and DoD medical information systems to talk with each other. We focus here on wait times and geographic accessibility for Veterans because these concerns have led to the most-recent direct congressional action affecting the VA budget.

As a result of concerns over wait times for appointments and geographic accessibility, Congress passed the Veterans Choice Act in 2014, which, as described above, provided additional funding

---

<sup>14</sup> Section 801 provides \$5 billion for spending on hiring more physicians and improvements in infrastructure. Section 802 provided \$10 billion for purchased care.

to VA both to increase the use of non-VA providers (\$10 billion) over three years and to hire more clinical and support staff in-house (\$5 billion). Interviews with congressional experts noted that the Veterans Choice Act added another layer to existing purchased care programs. Congressional experts said that the enactment of the Veterans Choice Act means that, eventually, all the purchased care programs, such as PC3 or the traditional purchased care program, will have to be reconciled, since they are attempting to achieve the same goals.

The Veterans Choice Act provided three years of mandatory spending for VA. Since VA is typically funded from discretionary funds in the appropriations bills, after three years, ongoing increases in spending for activities derived from the Veterans Choice Act will have to come from discretionary funds. This has the potential to affect the overall adequacy of VA funding if the budget is not increased to account for ongoing costs related to the Veterans Choice Act, particularly since the act required the hiring of additional providers, which will lead to recurring costs in the budget going forward. Congressional experts said that, in the long term, the VA discretionary appropriation will have to fund these costs. If the purchased care funded through the Veterans Choice Act is extended, the presumption is that Congress will fund it. The additional staff will have to be incorporated into VA's existing budget projection models (the EHPCM, discussed above), leading to increases in VA's overall budget.

In general, Congress does not give VA specific earmarks or funds to be spent on specific services, except for purchased care through the Veterans Choice Act. However, the committee hearings process gives VA direction on where Congress *would like* to see emphasis placed. In turn, the VA Central Office can respond with directives to emphasize certain programs or service lines. The Central Office can also allocate funds that have to be spent for specific purposes, thus being directly responsive to congressional concerns. Many facilities, however, view these funds as taking away from direct patient care. This will be discussed in the subsection on allocation below.

In summary, the main issues identified with the VA budget process include concerns about the data used for budget planning and inflexibility in budgeting stemming from the congressional appropriation processes. VHA develops its budget from older data, and there can be problems with the assumptions used in this process. In addition, Congress can influence VA through the agency's overall appropriation, by providing extra funding off-cycle or by emphasizing specific priorities through the hearings process. Issues highlighted during the hearings process are often turned into special purpose funds from the VA Central Office.

### 3.1.2 Allocation of Funds

In the previous subsection, we described how the budget is formulated and enacted. We now turn to a discussion of VA's process for allocating the congressional appropriation to the VISNs, which is a separate process from the one used for budget formulation. We also discuss issues with the allocation process that may lead to constraints at the VISN and facility level. Finally, we discuss other constraints not related to the allocation process, but that can also hamper facilities' effective use of fiscal resources.

### **3.1.2.1 Allocation Process**

Once Congress approves the overall appropriation, VA allocates funding to the VISNs through the Veterans Equitable Resource Allocation (VERA) model. This is a separate process and formula from the EHCPM, which is used to develop the overall budget. These models operate independently, as they serve different purposes. The VERA model serves to split the VA “budget pie” into equitable pieces, using a capitated-style model, while the EHCPM is designed to formulate the size of the overall “pie.” Capitation is a process through which health insurance plans pay providers a set fee per person per year, which may be adjusted for health risks. Capitation arrangements incentivize health providers to manage their patients’ overall utilization, as any unused funds become profit at the end of the year. VERA differs in several important ways from the usual capitation system. It allocates funding based on actual users, excluding enrollees in the area served by the VISN who do not receive any care. Because patients in different VISNs have a different mix of health care, the model incorporates a risk adjustment formula. Because VA patients obtain only some of their care from VA, this formula is based on the medical conditions treated at VA. Finally, VA has the aligned incentives of an integrated system with capitated payments, but not the same incentive to manage utilization to the point of expecting profits at the end of the year—all funds need to be obligated or spent.

Under VERA, the general purpose funding for medical care is allocated based on the number and types of patients treated and includes funds for administration and some facility maintenance. Specific purpose funds are allocated separately according to special legal or programmatic requirements, national support functions, and projects for which VA thinks that economies of scale can be achieved at a national level.

Patients are classified into types according to health condition, severity, age, and priority group, and the VISN receives an expected payment per patient type per year (2014 VERA Book [VA, 2014j]).<sup>15</sup> Specific purpose funds are allocated for a variety of programs, including prosthetics, rural health, and homelessness. Patients are broken out into 60 categories of health conditions and then rolled up into 10 price groups based on severity of condition. The 10 main groups roll up into the three main categories of complex care, basic vested care, and basic nonreliant care.<sup>16</sup> Complex care is the most expensive category, and these patients account for 4 percent or less of the VHA population but about one-quarter of the spending (2014 VERA Book [VA, 2014j]).

Table 3.1-2 summarizes the payment per patient for each of the 10 condition groups, as well as an example condition or service under the condition group. The payment per patient in each category is calculated using the proportion of total funds each group costs using VA’s internal data. There are adjustments for location-specific differences in labor costs and high-cost patients. High-cost patients are defined as those in the top 1 percent of spending for priority

---

<sup>15</sup> Priority groups establish eligibility for VA health care based on service-connected disability, income, and other factors.

<sup>16</sup> The term *vested* reflects those Veterans receiving the majority of their care at VA.

groups 1 through 6, or those with very long stays in community living centers. The threshold for the 2014 VERA model was based on utilization from 2012, with a threshold amount of \$108,000 for standard cases and \$242,000 for long stays in the community living centers (2014 VERA Book [VA, 2014j]).

**Table 3.1-2. VERA Allocation Amounts per Condition Group**

Price Groups	Diagnosis Example	Priority Groups 1–6	Priority Groups 7–8
1. Non-Reliant	Pharmacy use only	\$291	\$222
2. Basic Medical, Heart, Lung & GI	Cardiovascular disease	\$2,729	\$1,621
3. Mental Health	Addictive disorders	\$3,534	\$2,394
4. Oncology, Legally Blind	Oncology	\$5,094	\$3,339
5. Multiple Problem	Multiple medical	\$12,214	\$10,059
6. Significant Diagnosis	Metastatic cancer	\$21,730	\$17,447
7. Specialized Care	Stroke	\$16,373	\$11,824
8. Supportive Care	Needs home-based primary care	\$30,096	\$22,197
9. Chronic Mental Illness	Schizophrenia & dementia	\$28,902	\$28,902
10. Critically Ill	Polytrauma	\$64,518	\$60,639
10a. Long Stay Community Living Center	Nursing home care	\$166,261	\$166,261

Source: Reproduced from VA's 2014 VERA Book (VA, 2014j).

Note: *Non-reliant* indicates those who receive the majority of their care outside VA facilities in Priority Groups 7–8.

### 3.1.2.2 Allocation Levels

The VERA model in 2014 allocated 78 percent of the medical services funds from the congressional appropriation, with 22 percent withheld for the specific purpose funds. VISNs also received transformation funds to support initiatives to improve the coordination of and access to health care (for example, patient aligned care teams, telehealth). As discussed earlier, VISNs also oversee collection of copayments and, in some cases, billing of third parties for non-service-related care provided by VA. Table 3.1-3 shows estimates of the funds received by each VISN in each of these categories for FY 2014, the year for the latest VERA data. Table 3.1-3 shows that there was some reallocation of funding during the year from geographic areas with lower than expected levels of population served or lower utilization relative to areas whose utilization was higher than expected.

## Assessment B (Health Care Capabilities)

**Table 3.1-3. VERA Allocations, Specific Purpose, Transformation, and Estimated Receipts, by VISN, FY 2014 (in millions)**

<b>VISN</b>	<b>FY 2014 VERA General Purpose Total*</b>	<b>FY 2014 Specific Purpose*</b>	<b>FY 2014 Trans- formation*</b>	<b>FY 2014 Projected Collections</b>	<b>FY 2014 Projected Reimbursements</b>	<b>FY 2014 Projected Totals</b>	<b>Total % Change from FY 2013 to FY 2014</b>
01 Boston	\$1,995	\$323	\$9	\$125	\$6	\$2,458	0.3
02 Albany	\$935	\$155	\$7	\$54	\$3	\$1,154	2.4
03 Bronx	\$1,637	\$284	\$10	\$92	\$9	\$2,032	-1.7
04 Pittsburgh	\$2,010	\$289	\$8	\$121	\$7	\$2,434	-2.5
05 Baltimore	\$1,122	\$235	\$4	\$78	\$5	\$1,443	2.7
06 Durham	\$2,247	\$431	\$18	\$209	\$7	\$2,913	3.4
07 Atlanta	\$2,479	\$433	\$13	\$178	\$10	\$3,112	3.5
08 Bay Pines	\$3,567	\$620	\$9	\$290	\$38	\$4,524	-2.0
09 Nashville	\$1,879	\$286	\$7	\$155	\$11	\$2,338	0.0
10 Cincinnati	\$1,660	\$217	\$10	\$110	\$7	\$2,004	0.6
11 Ann Arbor	\$1,756	\$272	\$13	\$113	\$3	\$2,157	2.9
12 Chicago	\$1,915	\$357	\$5	\$168	\$18	\$2,462	2.2
15 Kansas City	\$1,613	\$289	\$6	\$132	\$6	\$2,046	-0.8
16 Jackson	\$3,197	\$632	\$9	\$215	\$7	\$4,061	2.9
17 Dallas	\$1,999	\$346	\$10	\$127	\$10	\$2,492	1.2
18 Phoenix	\$1,719	\$274	\$9	\$106	\$7	\$2,114	4.5
19 Denver	\$1,233	\$299	\$9	\$111	\$3	\$1,654	6.4

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.



### Assessment B (Health Care Capabilities)

<b>VISN</b>	<b>FY 2014 VERA General Purpose Total*</b>	<b>FY 2014 Specific Purpose*</b>	<b>FY 2014 Trans- formation*</b>	<b>FY 2014 Projected Collections</b>	<b>FY 2014 Projected Reimbursements</b>	<b>FY 2014 Projected Totals</b>	<b>Total % Change from FY 2013 to FY 2014</b>
20 Portland	\$1,904	\$347	\$15	\$135	\$3	\$2,405	3.5
21 San Francisco	\$2,287	\$363	\$27	\$122	\$23	\$2,822	3.8
22 Long Beach	\$2,456	\$455	\$26	\$105	\$9	\$3,052	0.4
23 Minneapolis	\$2,106	\$291	\$5	\$190	\$10	\$2,602	1.3
<b>VHA Totals</b>	<b>\$41,715</b>	<b>\$7,198</b>	<b>\$229</b>	<b>\$2,935</b>	<b>\$202</b>	<b>\$52,280</b>	<b>1.5</b>

Source: VA's 2014 VERA Book (VA, 2014j).

Notes: \*Values are estimates, reported prior to the end of the fiscal year. VISNs 13 and 14 do not exist, as they were combined into VISN 23.

The VERA model governs allocations from VHA to the VISN level. VISNs, in turn, govern the allocation to facilities. Prior to 2011, each VISN could vary in how it weighted different criteria in determining the allocation, including funding in the previous year, workload, and square footage of the facility. In 2011, VA introduced a new model, called the Medical Center Allocation System, to distribute VERA funding from the VISN to facilities; this mode included a new measure of workload called “patient-weighted work” (2014 VERA Book [VA, 2014j]). The measure took existing measures for resource-adjusted workload and added factors for high-resource-intensity patients, differences in costs at the facility level, and a facility complexity level. This facility-level model has not been reviewed extensively, though in 2011 GAO did review the initial phase of the process and found that networks were adjusting the amounts for particular facilities after the Medical Center Allocation System calculation had been done without adequate documentation for the reasons (GAO, 2011a).

While the VERA model allocates funding for medical services, the budgets for capital planning and IT are handled through separate processes for the whole VA (not just VHA). IT projects are developed according to a strategic plan and are prioritized by IT Investment Governance Boards (Department of Veterans Affairs, Office of Information and Technology, 2014). Assessment K discusses in greater detail the process for capital improvements to facilities. In summary, the requests for capital projects are put on the prioritized list of projects called the Strategic Capital Investment Plan, which was established in 2012 (VA, 2015c). The process includes an analysis of facility-level gaps in space, workload/utilization, access levels, and even wait times and compares them with capital assessment and strategic plan. Projects are prioritized according to six criteria ranging from improving safety and security to “rightsizing” the inventory. While the total budget for major and minor capital outlays is under \$5 billion for 2015, the facilities budget estimates that over \$50 billion would be needed to complete all projects based on current market conditions (VA, 2015c).

### 3.1.2.3 Issues in the Allocation System

In interviews, facility directors described three main concerns with the VERA allocation system to the VISNs. The first is that the time lag in calculating the allocation can leave some facilities underfunded if their Veteran populations are growing quickly. Facilities are cognizant of the need to undertake various activities to ensure that their allocation is as high as possible in subsequent years. These may take the form of seeing more patients for more medical conditions or providing more services for the same patients and medical conditions to obtain a higher allocation from the VISN. To the extent that all facilities behave in this way, the allocations will not change much in the short run because the budget is fixed. Over the longer run, however, the behavior could increase the budget projected by EHCPM.

The VERA model was originally created to reduce geographic inequities in funding, given the shift of Veterans from the northeast to the south and west and the potential for cost differences related to climate and local health labor markets. Since its inception in the late 1990s, the VERA model has been updated based on feedback from a series of RAND and GAO reports (GAO, 1997a; Wasserman et al., 2001; Wasserman et al., 2003; Wasserman et al., 2004). Initial improvements to the model increased the number of patient classification categories from three to 10 to better identify the health risks of the population, and included

extra payments for patients with outlier spending (Wasserman et al., 2004). A 2002 GAO report noted that, because VERA is in part based on workload, VA facilities were incentivized to see more patients, which may be good if the increased workload alleviates access problems (GAO, 2002a). The report noted three key concerns, however, including the need for better identification of workload, adjustments for age of facility, and accounting for the degree to which Veterans seek care through VA rather than seeing non-VA providers using other forms of insurance. If Veterans are more reliant on VA and using more VA services, the costs will increase. Both these factors can potentially influence the costs of caring for patients in a given year, but may not be reflected in the VERA allocation.

**Using older data.** While the VERA system is largely viewed as an equitable way to divide a fixed budget, it is important to note that the system used with VERA is relying on past data rather than the same projected data used in the EHPCM. For example, the population counts for the 2014 allocation for basic care use the average number of users from 2010–2012, whereas complex care patients use a five-year average. This process can leave VISNs over- or underfunded in a given year if demand is changing rapidly unless VA can reallocate funding from other VISNs. It will be able to do this only if the aggregate funding is high enough. Other systems would provide a set fee (adjusted for health status) for all expected enrollees, regardless of whether they actually use any services. While VERA does attempt to predict workload, this time lag can leave certain networks and facilities that experience strong demographic shifts with insufficient funding. Many facility leaders interviewed noted the two-year time lag in the VERA allocations as a problem for areas that are growing quickly. For example, one respondent said the process caused them to start the year with a projected deficit:

We had to take some steps locally to deal with that and delayed some funding of programs, that type of thing, to make sure we were going to close the year out—and we'll do fine now. But dealing with the increased workload that we're experiencing in conjunction with having budget challenges obviously makes for some very tough decisions.

**Other issues.** Respondents noted that their facilities were performing various activities to ensure that the VERA allocation was as high as possible. For facilities that are losing patients due to being in areas with poorer weather or less favorable economic conditions, there is pressure to maintain a patient load:

We lose Veterans constantly during the year to death, to out-migration, and to changing patterns of the Veterans that sometimes they don't need to use us. They have private health insurance and they won't come to us. So that's constantly changing during the year but we lose about 3,000 Veterans per year and we replace at least those 3,000 and usually a couple hundred more.

In addition to losing patients to other areas, some facility directors said that, to ensure that their allocation better reflects their actual utilization, they are conscious to code services accurately: “Probably about five years ago we started looking at a lot of the things that impact VERA to make sure that we were maximizing . . . or we were documenting correctly, we were coding correctly, we were getting everything completed within the amount of time to capture the appropriate workload.” It should be noted, however, that the coding systems in VA have

not worked particularly well, and Assessment I examines this issue in further detail. Additionally, Assessment G found that VA providers may not fully document and accurately code all of their clinical workload.

Respondents even suggested that there is some degree of including additional services to hit various workload levels:

So there's different facilities in the system that have learned to ensure to maybe have a consult from surgery. After surgery was done you do a home-based primary care visit, 10 visits over maybe three weeks to make sure that they're up and running but then you're going to get reimbursed for that and your VERA value is going to be higher.

The process of adding services can also lead to attracting patients with more-complex needs in order to increase funding levels. However, this is likely to be a zero-sum proposition across VISNs in the short run until the budget projection model can incorporate the increases in severity of patients and increase the overall budget request.

If we hire a cardiologist, is that going to attract more Veterans to us for cardiology services, which then turns into the VERA process, you know, they look at that and you're funded two years down the road [and] because you have additional Veterans coming in who have additional complexity and this is where you get your funding from.

While many respondents felt that the VERA methodology left them at a disadvantage, it should be noted that this concern was not uniform. Other respondents said that the VISNs are able to fill in funding gaps:

What usually happens, at least from my experiences at the network or the VISN level, through their methodologies to distribute the VERA monies, those things can be somewhat smoothed and the VISN and the medical center can be a little bit more responsive, as far as to the real-time needs.

Others say that the VERA model is doing a relatively good job of gauging the workload and cost of doing business in different areas of the country:

In that VERA funding model, I understand there is a component piece that is just for rural aspects of health care. That actually gives you a little bit of a bump and allows you to earn a little bit more, recognizing that costs in rural America are higher than other places.

### 3.1.2.4 Additional Funding Constraints

Through interviews with facility leaders, we identified several other constraints to using allocated funds efficiently at the facility level. Most facilities identified an inability to use their budgets flexibly across pots of money for IT, facilities, and medical care. Facility leaders felt that the capital planning process is misaligned with the budget process and said that they are not able to roll over funds from one year to the next. Finally, many respondents also noted that many, but not all, centralized VA processes were a barrier to providing adequate patient care. We discuss each of these issues here.

**Lack of flexibility in spending.** As described above, at a broad level, the VA appropriation for VHA is divided into accounts for medical care, medical support and compliance, and some

nonrecurring maintenance. The money is not fungible across domains because of appropriations law: “Appropriations shall be applied only to the objects for which the appropriations were made except as otherwise provided by law” (U.S. Code Title 31, Section 1301). For example, a VA Office of Inspector General report found that the Chief Business Office was in violation when it used \$92.5 million to build a claims processing system. The violation was due to using funds from the Medical Support and Compliance appropriation rather than the IT Systems appropriations (VA Office of Inspector General, 2015b).

Many facility leaders said the inability to shift money between the major allocation line items, such as maintenance and medical services, makes it difficult to adequately manage the budget in a year:

The pots of money, they’ve got to stop. . . . If you would actually trust the individuals that you have put in place to run your hospitals and realize what those resources were needed for that certain facility, then you would be able to manage it much better.

Another respondent noted that the lack of flexibility is detrimental to their ability to respond quickly to workload shifts:

We have so many various appropriations in fenced money that it makes it very difficult in the field to deal operationally with your finance. So what it does is it really ties the hands of the facility and VISN leadership in making decisions quickly in response to workload shifts and that type of thing, because money is tied up in special purpose or fenced. That is a huge, huge issue I think for VHA.

**Special purpose funds.** VA facility leadership we interviewed believe that the special programs money take away from the overall budget for patient care: “They’ll take money off the top and then allocate that money to the fields to provide seed money to start new programs, which is good. The problem is then they hire three people in D.C. to manage that program.” Many respondents said VA Central Office initiatives removed flexibility from their budget and planning process:

So they decide what your needs are, they decide that you need 15 mental health providers and say, “Here you go. You can only spend this money on this.” And then at the end of the year if you didn’t necessarily need that, you can’t use the money for different operations somewhere else. You would have to return that money to Central Office.

One director said that, even if there is funding, in addition to having enough demand for the given service, the extra money may come without any regard to the physical space or IT requirements needed to fulfill the request: “[With the Veterans Choice Act money] we’ve been given the dollars to hire additional staff and in many cases people think, ‘Where am I going to put them?’” Another respondent stated that their facility was told to hire more than 150 new staff for mental health:

And in order to do that we’re putting up modular buildings until the space is available. Then we can start bringing the people onboard. But you can’t recruit until you have that space to accommodate that staff. So it works great when the money comes at the beginning of the fiscal year. You have time to plan well and you’ve got the space. But

when it comes at a very restricted time or the timeline is very short it makes it a challenge.

Finally, one respondent noted that requests from the Central Office may also come without enough or any funding attached:

The expectations on those mandates come that you are to address them immediately. . . . You're given a budget and you are reminded all the time that you have to stay within this budget; you have to manage within this budget. Usually then you go to staffing because that's where most of your budget is allocated to. And so where do you cut staffing, or where do you delay bringing people onboard? And that always impacts on quality of patient care.

While many facility leaders expressed frustration at the special purpose monies being diverted from the overall pot of money to be allocated through VERA, Central Office officials did say that some of the special purpose funding allows VA to respond to both congressional and Veteran Service Organization groups in a timely way:

It all ends up back in the field. It is just managed centrally, so although there is a tug sometimes because every VISN and every facility would like to get their money un-earmarked, if you will. "Don't tell me how much to spend on prosthetics. I will figure that out myself. Just give me the money," so there is that dynamic tension, but we seem to vet that out pretty well by making sure that what is in specific purpose is either required by law or some other special motivating factor.

**Difficulty in funding new construction or renovations.** Many respondents said that the ability to quickly approve facilities and IT requests would help them expand capacity in areas where it is needed most. The facilities master plan approves major and minor construction projects. It can take years for the process to authorize a project. An audit from the VA Office of Inspector General found that construction projects were often not well managed and needed more oversight (VA, Office of Inspector General, 2014a). The report indicates that the time required to insert projects into the timeline can mean that the final project may have no correlation to current demand:

Although projects under \$1 million are selected and approved annually, a [Strategic Capital Investment Plan] project proposal submitted in FY 2014 will be scored, and if approved in FY 2015, will receive design funds in FY 2016 and construction funds in FY 2017 (page 9).

Many respondents also described the process for getting new buildings or major renovations into the capital strategic plan as cumbersome:

As the director of an organization, of a health care system, that if we identify a need to lease an extra 10,000 square feet to meet the demand and provide the source to the Veterans, it shouldn't take at the level of the deputy secretary to loop things quickly through the organization.

As a result, many respondents said the space constraints negatively affect their ability to hire providers: "The number of Veterans we're seeing is increasing, yet you can't add new parking, you can't add new offices, you can't add new exam rooms in a reasonable, even an

unreasonable, amount of time.” Planning for new space can be difficult for facility leadership to anticipate:

You know, you try to plan as much as you can in advance, but you just can’t read the tea leaves all the time. And so when you try to make adjustments to clinics, to facilities, it’s a multiyear approval and funding process, before you even get into construction. That slows us down.

**No incentive to save for capital planning.** While VA is similar to other capitated systems, such as a health maintenance organization (HMO), money not used on patient care at the end of the year cannot be saved and put toward new equipment or capital planning. Funds have to be obligated fairly quickly in the year in a “use-it-or-lose-it” fashion:

You have to compete with all the other facilities across the country and then Congress decides what they’re actually going to fund for that year and it may be two to three years down the line. So if I was running a private-sector hospital, I would be able to utilize a variety of different funding methods to do this, but it doesn’t even benefit me to save resources during the year because I can’t apply that to any of the following years.

Beyond saving money for capital projects, the critique about the lack of incentive to save money was also noted for within-year funding, so that there are no reserves at the facility level for emergencies, because all the funds have to be obligated six months into the year:

I understand that we can’t show Congress that we have all this equipment money sitting there at the end of the year, but having to have it obligated and spent in the first six months makes absolutely no sense. You need to hold onto a little bit in case something bad happens, something breaks, something goes wrong.

While there is a drive to obligate money as quickly as possible, some facility leaders said they readied a list of additional equipment or projects to absorb any last-minute funding. Respondents noted that there can be a rush to spend extra money at the end of the year: “The other thing is that sometimes then in late-August/mid-August, and all of the sudden they say, ‘We’ve got money but you’ve got to spend it by September the 30th.’ We’ve learned how to deal with that because it’s happened year after year.”

**Centralized processes that take time away from patient care.** IT, like capital infrastructure, does not all come from the same pot of money. As a result, managing the IT resources is challenging, as is requesting new items: “We need the ability to manage the IT budget in conjunction with the business.” Another respondent noted that the centralized IT process across all of VA creates its own problems.

So the disconnect you have is, we put money in the budget to buy more telehealth medical equipment. We get it. We don’t score high enough in [the Office of Information and Technology], so we don’t get the pipelines [bandwidth], if you will, and so we end up with equipment we can’t fully utilize or we can’t utilize it to maximum capacity if we’ve got small lines.

Beyond the centralized processes for facilities and IT requests, many respondents expressed frustration with the central contracting office. One respondent said the contracting process is a barrier to effective and timely care:

I've got an issue on my desk right now where I've got a patient I need to send out to a long-term acute facility, not a typical community nursing home. We'll have to do an emergency contract, make phone calls every single day to get this done in two months. . . . You know how much executive time, not just for me but my associate director, the Chief of Staff, chief of social work, chief of logistics, calling around, doing . . . that is insane and this is something we have created within the VA.

Other concerns about the contracting process included the extensive reporting requirements and the requirements to prioritize small businesses for contracting in rural areas. One respondent summarized the situation as difficult at best:

[The] simpler the process can be made to be, the better our Veterans will benefit. So as we go to pay bills, as we enter into contracts, the magnitude of things we have to do to expend that money on behalf of our Veterans sometimes slows the process and gets in the way. But we understand we're a public entity with a trust and that we have to do our due diligence to ensure that we're following the law, but that comes at an expense of the speed and volume of care.

Despite these findings from facility leadership on the difficulty in dealing with central processes, it is not necessarily true that all centralized processes are inefficient. For example, Central Office officials highlight that there may be efficiencies in centralizing certain business processes such as billing or paying claims for purchasing care from non-VA providers: "We looked at the fee basis care program . . . it was three or four years ago, and basically found that it was total chaos. And part of what was recommended there was greater standardization and more consistency because that is an area where there should be more consistency."

### **3.1.3 Comparing the Adequacy of VA's Health Spending with Private-Sector Spending**

In the previous subsections, we discussed the budget development and allocation processes and described various problems with the allocation process that can cause facilities to be over- or under budgeted in a particular year. These problems include the time lag in the data, incentives for facilities to increase workload to increase future funding, and large maintenance costs for older buildings. However, these analyses do not directly answer the question of whether VA has enough money to provide timely and accessible care.

To answer this key question, we would need some benchmark against which to compare VA's costs of care. There is no natural comparator, given the integrated delivery system of VA, with its differences in population. There are other integrated delivery systems, such as Kaiser Permanente or Geisinger Health, but their beneficiaries generally receive all their care from their system, something that is not true for VA. This limits the value of such comparisons. The differences in the Veteran population compared with the private-sector population are discussed in detail in Assessment A. In 2011, the Congressional Budget Office estimated that the spending on Veterans of recent conflicts in Iraq and Afghanistan could total \$40–\$55 billion from 2011 to 2020, since advances in technology have allowed many service members to survive injuries that were previously fatal (Congressional Budget Office, 2011).



Over the past two decades, many studies have attempted to address the question of whether VA care is more cost-effective than the same care would have been if purchased from the private sector; these studies have produced divergent findings. A 2009 study found that overall VA health costs and inpatient services costs are substantially higher than in the private sector (33 percent and 56 percent, respectively), but drugs prices are lower in VA (Weeks et al., 2009). In contrast, other studies have found that the cost of care provided in VA is lower. In an earlier set of articles in *Medical Care* in 2003–2004, the authors concluded that the cost to taxpayers for VHA services would be 15.6 percent higher if the same set of services were provided at Medicare payment rates (Render, Roselle, Franchi, & Nugent, 2003; Render, Taylor, Plunkett, & Nugent, 2003; Hendricks, Whitford, & Nugent, 2003; Nugent, Grippen, Paris, & Mitchell, 2003; Roselle et al., 2003; Nugent, 2004). A major driver of the difference in costs at the time was drug prices, since VHA negotiates lower prices for pharmaceuticals, and, at that time, Medicare’s Part D drug benefit had not yet been enacted. Even now that Part D has been implemented, however, the price for VHA drugs is still lower than Medicare’s; Medicare is prohibited from negotiating drug prices as VHA does.

The studies have similar methodologies, which is to price the same “basket” of services in either Medicare or the private sector. Weeks et al. (2009) estimated VA costs by determining the proportion of spending on the particular service and then dividing this by the number who received the service. They used the Medical Expenditure Panel Survey to estimate the cost in the private fee-for-service environment for the same basket of services. The *Medical Care* series of articles used Medicare allowed amounts for services and did a microcosting study to document the variety of services VA provided that do not ordinarily show up in administrative records because VA does not have to bill for them as an integrated delivery system. Both these methods fail to control for the variety of other costs, such as benefits for employees or the severity of patients that may make private-sector or Medicare estimates lower or higher.

Comparisons to the private sector, such as those described in these studies, are difficult to interpret because having lower spending is not necessarily an indication of more efficient spending. The Congressional Budget Office found that comparing per capita spending between VA and the private sector can be misleading because of differences in patient populations served and the fact that many Veterans, including users of VA health care, have at least part of their medical needs met at private facilities through Medicare or private insurance (Congressional Budget Office, 2014). The Congressional Budget Office found that comparing the costs of care for particular services (the cost of providing the service rather than total spending, which would include the quantity of services and their prices) can be a better approach. However, the Congressional Budget Office found that even this approach can be problematic because VA is an integrated delivery system, so not all services are assigned unit costs as they would be in a fee-for-service environment. Additionally, incentives are more aligned in integrated delivery systems, which can affect the intensity of services for each procedure. Thus, we conclude that comparisons of VA spending with that in the private sector are not valid ways of measuring whether VA has enough resources to provide timely and accessible care to Veterans.

### 3.1.4 Subsection Summary

VA is funded through annual congressional appropriations. Congress approves the overall VA budget, adjusting it up or down. Assuming that VA has requested enough money to meet its needs, and that Congress approves the budget, VA then allocates the money to its care networks VISNs and then to facilities. In passing the Veterans Choice Act in 2014, Congress, in an unusual step, provided additional funds through a mandatory appropriation to be spent over three years.

We were not able to determine whether VA has adequate fiscal resources for health care, given Veteran demand. There is no objective measure or benchmark against which to compare VA's budget and spending to know whether it has sufficient funding to provide timely and accessible care. Additionally, data are not available to measure unmet demand due to access barriers (not enough funding) or to assess the productivity of VA in delivering health care services with its current level of resources (not efficient at using existing resources). Shortcomings in the data for assessing access are discussed further in Section 4 of this report and in Assessment D's review of access standards. Shortcomings in assessing productivity are detailed in the Assessment G report.

We found that VA faces a number of barriers in planning for and using its fiscal resources effectively. The main issues identified in the VA budget process include concerns about the data used for budget planning and inflexibility in budgeting stemming from congressional appropriation processes. VHA develops its budget from older data using models that project past utilization and trends into the future. If access barriers curtail demand, past utilization will underestimate the resources required to provide access. If past trends are a poor predictor of future trends, budget requests will be too high or too low. As we discuss elsewhere in this report, VA does not have sufficient data to accurately identify unmet demand, and we were not able to evaluate EHCPM prediction accuracy over time. As discussed earlier and in the Assessment A report, however, it is possible that demand will level off in the coming years. If it does, this should facilitate budget projection.

Congressional priorities can affect VA's appropriation, as with the enactment of the Veterans Choice Act. The impact of increases in purchased care from the Veterans Choice Act on the budget in future years is currently unknown. The additional providers hired with Veterans Choice Act funds will also need to be accounted for in the next budget cycle.

The allocation of the funds to VISNs for medical services is based on a quantitative model designed to capture the local cost of service, the severity of patients, and the overall workload of a facility. This process is generally thought to be equitable. However, we found that it is using data that are several years behind the current allocation year. Unless VA and the VISNs closely monitor utilization and spending trends during the execution year and reallocate funding as needed, reliance on two-year-old data can leave facilities that are experiencing strong demographic trends over- or underfunded in the current year, and creates incentives for facilities to see more of certain types of patients in order to increase funding in future years.

Interviewees indicated that the separate IT and facility budgets are insufficiently linked to medical service funding and are detrimental to their ability to respond quickly to the need to

expand workforce at a facility. Facility directors believe that Central Office processes take too long, and facility directors lack flexibility to move money between funding streams. They also said that they lack flexibility to manage special purpose funding efficiently across their facilities.

In the next subsection, we turn from a focus on fiscal resources to consider VA's workforce and human resources capacity, that is, the employees who support and provide health care for Veterans.

### 3.2 Workforce and Human Resources

While VA's fiscal resources fund its health care system, VA's workforce and human resources consist of the people who support and provide health care for Veterans. VA employs physicians, nurses, and other providers directly, owning and operating hospitals and other facilities to meet eligible Veterans' needs under a fixed budget. VA also contracts with private physicians to deliver some services within VA facilities (GAO, 2013c). Additionally, as described in Subsection 3.4, under special circumstances VA will purchase care. As such, VA capacity to deliver services is affected by the capacity of both the VA and the non-VA workforce.

Understanding VA's total workforce capacity is complex due to this mix of internal and contracted services, but generally this capacity depends on two key factors:

- The number of providers, which will depend on the ability of VA to hire and retain staff at each facility
- Provider productivity, which is shaped by factors such as sufficiency of support staff, IT capabilities; VA's staff management capabilities, including culture and policy; and physical infrastructure (for example, number and size of exam rooms).

This subsection is divided into four parts. The first part describes how VA assesses and plans for the number of providers required to meet the needs of VA beneficiaries. The second part describes the numbers of clinicians providing direct patient care at VA and their productivity. The third part determines where the biggest workforce capacity constraints might exist by specialty. Finally, the fourth part discusses why workforce-related capacity constraints might exist. When comparing across specialties, we focus on 12 specialties that care for the seven illustrative clinical populations considered in Assessment B.

A summary of the methods used in these analyses is shown in the box.

#### **Overview of Methods and Data for Assessment of Workforce and Human Resources**

- To assess VA's health care workforce resources and capabilities, we developed descriptive data tables describing total workforce and productivity estimates for physicians, associate providers, and therapists, and generated reports for representative specialties, including those relevant for the illustrative clinical populations.
- We used worked clinical FTE counts for physicians, associate providers, and therapists to describe the current workforce and work RVUs to measure specialty physician and associate provider productivity. For therapists, we measured productivity in terms of the number of encounters per therapist

clinical FTE. For primary care, we measured physician productivity by measuring “panel size,” that is, the number of unique patients seen by each primary care physician per year.

- We assessed variation in specialty care workforce supply and productivity and the extent to which various factors might affect workforce supply through changes in the recruitment and retention of various provider types.
- We interviewed VA employees and others with VA expertise to gather information related to workforce planning, productivity, and barriers to recruiting and retaining workers. We supplemented these analyses with an extensive review of the literature.
- For each of the seven illustrative clinical populations, we selected a subset of specialties that care for patients within the population and characterized facilities based on a measure of accessibility (measure of wait times for new patients) and productivity (RVU estimates). We used the wait-time variables to categorize each facility-specialty combination as having high or low wait times and used the findings from the literature reviews and interviews to identify specialties for which there are likely capacity constraints as well as potential causes of capacity constraints.
- Data sources used in these analyses include staffing and productivity data provided by Assessment G (including data collected from the VISTA New Person File, VISTA Patient Care Encounter File, and the Monthly Program Cost Report); SK&A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database; VA Planning Systems Support Group Enrollee file; MGMA surveys; and VSSC [See Strategic Analytics for Improvement and Learning Cube]
- For complete details of the methods used to assess workforce and human resources, please refer to Section 2 of this report.

This subsection will not discuss most indirect factors associated with provider capacity as they are discussed in other parts of this report or in other assessments:

- Assessment A addresses the demand for services.
- Subsection 3.4 of this report and Assessment C discuss purchased care.
- Subsection 3.3 of this report and Assessment K examine the space and medical supply inputs that can influence the number of providers available.
- Subsection 3.5 of this report discusses in greater detail the IT initiatives that may affect provider productivity.
- Assessment G constructs provider productivity measures and FTE counts, benchmarking them against private-sector productivity.

In addition, there is nontrivial overlap between work performed by Assessments B and G in terms of VA workforce. Both Assessments B and G use VA data to estimate provider counts and productivity for physicians and associate providers in the VA system. Assessment G processed and made these data available to Assessment B. Assessment B combines these data with wait-

time and interview data to identify the specialties with capacity constraints and factors affecting capacity in order to describe potential capacity constraints of those physicians. Assessment B also develops estimates of provider counts and productivity for therapists (for example, physical therapists and occupational therapists).

Despite the significant overlap between Assessments B and G, there are important differences in the approach to estimating provider FTE counts. In order to calculate total FTE counts, Assessment B focused on the worked FTEs, whereas Assessment G focused on paid FTEs, which includes worked FTEs plus additional labor mapping categories, most notably leave. We felt it was most appropriate for Assessment B to focus explicitly on the amount of time providers spent working (that is, worked FTEs). We believe that this is a closer reflection of the amount of resources available to provide timely, accessible care for Veterans. Differences in the FTE definitions have the most significant effect on estimates of the total number of providers as well as estimates of the proportion of time that providers spend performing clinical duties.

### 3.2.1 Assessing and Planning for Workforce Capacity

In this subsection, we discuss how VA assesses and plans for the number of providers required to meet the needs of VA beneficiaries. These processes lay the foundation for VA's workforce capacity. It is important to understand how these processes work and what their strengths and weaknesses are. This subsection also includes a brief discussion of how VA measures provider productivity and whether deficiencies exist in this process. We also discuss improvements to productivity measurements and workforce planning that were developed as part of the 2014 VA Interim Workforce and Succession Strategic Plan.

#### 3.2.1.1 VA Approaches to Assessing and Planning for the Health Care Workforce

To determine the optimal number of health care providers in each facility, VA uses several tools to measure the workload and productivity of providers and the timeliness and quality of care they deliver. Generally, these reports are accessed by both facility and VISN leadership, but facility leadership are generally responsible for assessing staffing levels and taking personnel actions.

- **Primary care workload.** To measure the workload or productivity of primary care physicians, VA staffing models use a panel size method, which sets limits on the number of services a provider can deliver and the number of patients for which the provider can be accountable. The VA definition of a patient panel differs meaningfully from non-VA definitions. VA defines a panel as the number of patients that have visited a VA primary care provider within a defined time period (for example, 12 months for new patients and 24 months for established patients). Conversely, most non-VA providers define panels as all patients for which a provider is responsible regardless of the timing of their most recent visit. This may have unknown effects on comparison of panel sizes within and outside of VA.
- **Specialty care workload.** For specialty care, VA recently developed a staffing model based on work RVUs—values used for determining the relative time and intensity required to deliver a given service. RVUs are designed to determine physician payment in Medicare

and are used by most other payers. RVUs consist of a facility portion and a work portion. Our RVUs focus exclusively on the “work” portion of the RVU. A service with a higher work RVU is one that requires more time or more intensity work by a provider. VA differs from non-VA health care systems in the way they use productivity metrics. Outside of VA, productivity measures are often not used at all. When they are used, they are not typically used for workforce capacity planning.

- **Facility-level productivity.** Facility-level productivity estimates are calculated as the sum of the work RVUs divided by the number of physicians working at that facility. Facility-level RVUs are calculated separately for each facility by specialty. VA uses these values to estimate the number of providers needed to care for its projected specialty care patient population.

**Determining primary care capacity.** VA uses the Primary Care Management Module to assign each patient to a primary care team composed of one primary care provider and various support positions. To determine primary care team capacity, VA sets panel size expectations based on the number of active patients assigned to each primary care provider. Panel size expectations vary depending on levels of support staff, space, and patient complexity. Some facilities are also experimenting with linking factors such as patient experiences or outcomes to their estimates of needed staffing levels (Griffin & Swan, 2006). At a June 2014 House subcommittee hearing, Dr. Thomas Lynch, the Assistant Deputy for Clinical Operations and Management of VA, mentioned that VA may start using RVU-based approaches to assess productivity, efficiency, staffing, and capacity for primary care services, but details were not discussed at length in the documents we identified (House Committee on Veterans Affairs, 2014).

**Determining specialty care capacity.** The Office of Productivity, Efficiency, and Staffing produces productivity benchmark data for specialty care providers based on the distribution of productivity estimates within VA, given that little national guidance exists for most specialties. The source of the data is the Physician Productivity Cube (PPC), a unique national data set that houses VA specialist workforce, workload, and productivity data from various Corporate Data Warehouse databases. Like many private-sector health care organizations, VA measures specialty care productivity in the PPC as work RVUs (VHA, 2014), supplemented by information on the number of encounters and the number of patients. VA then created the Specialty Productivity Access Report and Quadrant Tool (SPARQ), which uses PPC data to generate user-friendly, summative reporting for VA facilities to review facility or specialty-specific productivity and wait-time data. This report allows VA and facility leadership to identify where a facility’s wait times are long compared with other VA facilities and to understand the extent to which long wait times might be driven by low productivity relative to other facilities. SPARQ can be used to generate reports using PPC data to assist VA and facility leadership in evaluating specialty productivity, access, staffing, and efficiency (OPES, 2014).

One interview respondent described how the PPC helped them identify ways to improve productivity:

So [the PPC] is a tool that everybody uses across VA, and we use it extensively here. What we’re finding is that there are far too many people that are doing administrative

work that probably should be doing more clinical work. So we have been slowly but surely relentlessly cracking down on that.

Most facility leaders we interviewed described workforce planning as an iterative process; they rely on sister facilities and other comparative benchmarks to determine staffing levels, while also keeping apprised of access measures—primarily wait times—to ensure that staffing is adequate for demand in each specialty. However, they reported that they use the wait-time and productivity data available in the PPC and SPARQ and are interested in further refinements to the data (see below). Respondents cited these analyses of provider workload and related assessments of provider capacity as key inputs when facilities try to identify causes of poor access in certain specialties: “If we’re struggling to get patients seen, then we’re looking at all of the possibilities: Are there things we can do to make them more efficient? Is there a way to schedule additional clinics using either fee or part-time?”

VA has improved its tools for tracking productivity and workload over the past decade. VA relies heavily on the PPC to track provider workload and productivity and has used this data repository to develop user-friendly summative tools for facilities to review practice performance. RVU-based productivity measures have become the standard for specialty physicians. Discussions regarding its use for measuring primary care productivity are currently taking place, and it will likely become a VA physician-wide method in the future. Steps to advance the effective use of these data in staffing and workload decision making will likely occupy VA for the foreseeable future.

### **3.2.1.2 Challenges VA Faces in Planning for and Assessing the Health Care Workforce**

We identified several key challenges associated with VA staff planning and assessment processes. These include a lack of guidance about what methods should be used, a lack of external productivity benchmarks, inaccurate or incomplete data inputs, and the inability of the data system to adequately account for certain types of providers and patient visits.

The VA Office of Inspector General determined in 2012 that VA facilities often do not have staffing plans because of unclear direction on which methodologies to use to identify occupations that are experiencing shortages (VA, Office of Inspector General, 2012a). In 2015, the VA Office of Inspector General also found that the methods to identify staffing shortages are not adequate because they are based on VA regional rankings, which do not have enough detail at the facility level to help facility leadership set staffing targets (VA, Office of Inspector General, 2015a).

The 2012 VA Office of the Inspector General report also highlighted the fact that many specialties do not have productivity standards—an issue that both the VA Office of the Inspector General and the GAO have repeatedly pointed out over the past two decades (GAO, 1997b; House Committee on Veteran’ Affairs, 2013; VA, Office of Inspector General, 2012a). VA continues to work on this important issue. The PPC allows hospitals and health care systems to compare themselves against national medians, medical centers of similar size and complexity, and private-sector benchmarks. However, most studies that compare VA with the private sector highlight the fact that significant variation in patient populations, modes of care delivery, and

payment structures make a clean comparison difficult (Asch et al., 2004; Yaisawarng & Burgess, 2006). Assessment G addresses this issue in detail.

The accuracy of some data inputs into the staff planning process can be problematic. In particular, interviewees reported that variations in Current Procedural Terminology coding practices, inconsistently entered workload data, and incomplete or poorly detailed physician encounter data make it difficult to consistently measure productivity. Some interviewees expressed concern that RVU-based workloads do not capture the full spectrum of services provided because individual procedures and other services are not as reliably coded as bills generated in a fee-for-service system. As a consequence, the differences in RVUs between providers or facilities could reflect differences in coding practices rather than true differences in productivity. In addition, with an integrated delivery system, services and costs for services are not measured in individual units, making calculations of RVUs and comparisons to the private sector difficult. Some interview respondents noted issues with the accuracy of the labor-mapping data: “We’re finding that . . . some people have been credited for doing things that they really shouldn’t get credit for doing in terms of admin time, education time, and so forth.”

The current data systems do not adequately account for certain types of providers in the staff planning process. Internal VA documentation highlighted several issues with data tracking that continue to be a problem (VHA, Office of Productivity, Efficiency, and Staffing, 2014b). For example, providers working for VA under contract are not directly counted in the FTEs for specialty care because the system includes only data for VA-salaried physicians. VA facilities can expand their workforce by using part-time providers acquired via contracts between VA and its affiliates (contracts), or via relationships with independent providers that work at VA for a fee (fee-basis). Contract providers have appointments at facilities with formal VA affiliations, such as medical schools. Fee-basis providers accept a temporary, intermittent, or part-time appointment for a fee, but they are not necessarily linked to a VA affiliate. Contracted and fee-based providers are unique from purchased care in that they work within the walls of VA.

Given that there is no data source available for the FTE value for in-house fee or contract physicians, the PPC does not calculate a direct productivity measurement for contracted physicians. Another issue is that the system does not provide specialty specificity for advanced practice providers, so encounters that have only a nurse practitioner or physician assistant listed cannot be easily mapped to specialties in the PPC. Additionally, medical residents are not distinguished from fully qualified physicians in practice productivity measures and are not included in specialty-specific counts, which may artificially lower productivity measures by specialty grouping. Perceived problems with productivity assessments have led some facilities to implement policies to improve the usefulness and accuracy of these data, including establishing procedures for comparing labor-mapping data to providers’ scheduling grids. However, these procedures are labor-intensive and not widely implemented.

The data systems also are not able to fully account for certain types of visits. Interview respondents described how new initiatives such as telehealth and group clinics have strained the utility of these metrics:

We have group visits that allow us to treat eight or 10 patients in a group setting, and if the wrong code is being used in the group setting, sometimes we don’t get the workload



credit, and it looks like it might be a productivity issue whereas, in fact, the provider is working very hard, is very productive; he's just not getting credit.

Despite progress in productivity and workload measurement, there are still a handful of challenges VA needs to overcome to ensure that the data and tools it uses to plan and assess the health care workforce are more valid and reliable. In addition to standardizing staff level and productivity targets, VA is still refining the micro-level data that feed into its data systems. Steps to address these accuracy issues have been taken, but adjustments to the way clinical and administrative data are collected and classified are needed to improve upon existing systems.

### **3.2.2 Current VA Health Care Workforce Resources and Capabilities**

Current VA capacity is a function of the number of providers in the VA workforce and their productivity. This subsection provides an overview of the current (FY 2014) VA staffing numbers and productivity data. One of the largest providers of health services in the world, VA had nearly 300,000 employees in 2014 (Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014). While VA's workforce grew 15.8 percent from 2008 to 2012, the growth rate slowed over that period. In this subsection, we describe the numbers of clinicians providing direct patient care at VA and their productivity. Although many types of employees provide VA patient care, because of limitations in the data available to us, we focus on clinical providers, such as physicians; associate providers, such as nurse practitioners and physician assistants; and therapists, such as physical and occupational therapists. In other parts of this report, we will discuss issues involving other employees (for example, registered nurses and support) that might affect the numbers and productivity of the billing providers and therapists. Throughout this discussion, we use the "facility" as the unit of analysis. We consider a facility to include an administrative parent facility, often a VAMC, and its associated outpatient clinics (for example, CBOCs).

#### **3.2.2.1 Workforce Numbers**

Physicians spend their time in various ways, including providing clinical care, conducting research, performing administrative tasks, and teaching. As a result, the number of physicians employed by VA may overstate the level of resources allocated to patient care. Therefore, we focus on the number of clinical FTEs: If a physician works full-time for VA but only half in clinical care, he or she contributes 0.50 clinical FTEs. Clinical FTEs also include clinical activities outside face-to-face patient appointments, but do not include other labor mapping categories, such as paid leave. In FY 2014, VA employed a total of 31,269 physician<sup>17</sup> employees working either full-time or part-time, for a total of 19,900 FTEs. On average, these physicians spend close to 80 percent of their FTEs in clinical care, for a total of 15,543 physician clinical FTEs across all specialties. On average, there were approximately 121 physician clinical FTEs per parent facility.

---

<sup>17</sup> Consistent with VA methodology for designating "physicians," this category also includes a small set of nonphysician clinicians including psychologists and chiropractors.

## Assessment B (Health Care Capabilities)

**Physicians.** Table 3.2-1 summarizes FY 2014 physician clinical FTEs and physician clinical FTEs per 1,000 unique patients for an illustrative set of specialties, focusing explicitly on 12 specialties that serve the illustrative clinical populations. The specialties with the largest FTE counts were mental health (an average of 34.2 physician clinical FTEs per facility) and internal medicine (an average of 27.94 physician clinical FTEs per facility). Other specialties were not as well represented. For example, the average physician clinical FTE per facility was 1.12 for endocrinology and 0.80 for obstetrics and gynecology.<sup>18</sup> The number of physician clinical FTEs in each specialty varied across facilities. The greatest variations, as measured by coefficient of variation, were for physical medicine and rehabilitation, emergency medicine, thoracic surgery, and mental health.

**Table 3.2-1. VA Physician Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014**

Specialty	Count of Facilities	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTE Per 1,000 Unique Patients at Each Facility—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Coefficient of Variation
Mental health	140	34.2 (21.36)	0.62	0.69 (0.24)	0.35
Internal medicine	140	27.94 (17.09)	0.61	0.57 (0.14)	0.25
Emergency medicine	111	4.11 (3.30)	0.80	0.08 (0.06)	0.75
Cardiology	126	3.01 (1.96)	0.66	0.06 (0.03)	0.47
Surgery	126	2.96 (1.58)	0.53	0.06 (0.03)	0.48
Gastroenterology	112	2.48 (1.57)	0.63	0.04 (0.02)	0.44
Physical medicine and rehabilitation	124	2.44 (2.11)	0.86	0.05 (0.04)	0.75

<sup>18</sup> Although VA does not offer obstetrical services, the related specialty is referred to as “obstetrics and gynecology” both within and outside the VA. We retained this nomenclature to be consistent with non-VA workforce analysis and internal VA documentation.

## Assessment B (Health Care Capabilities)

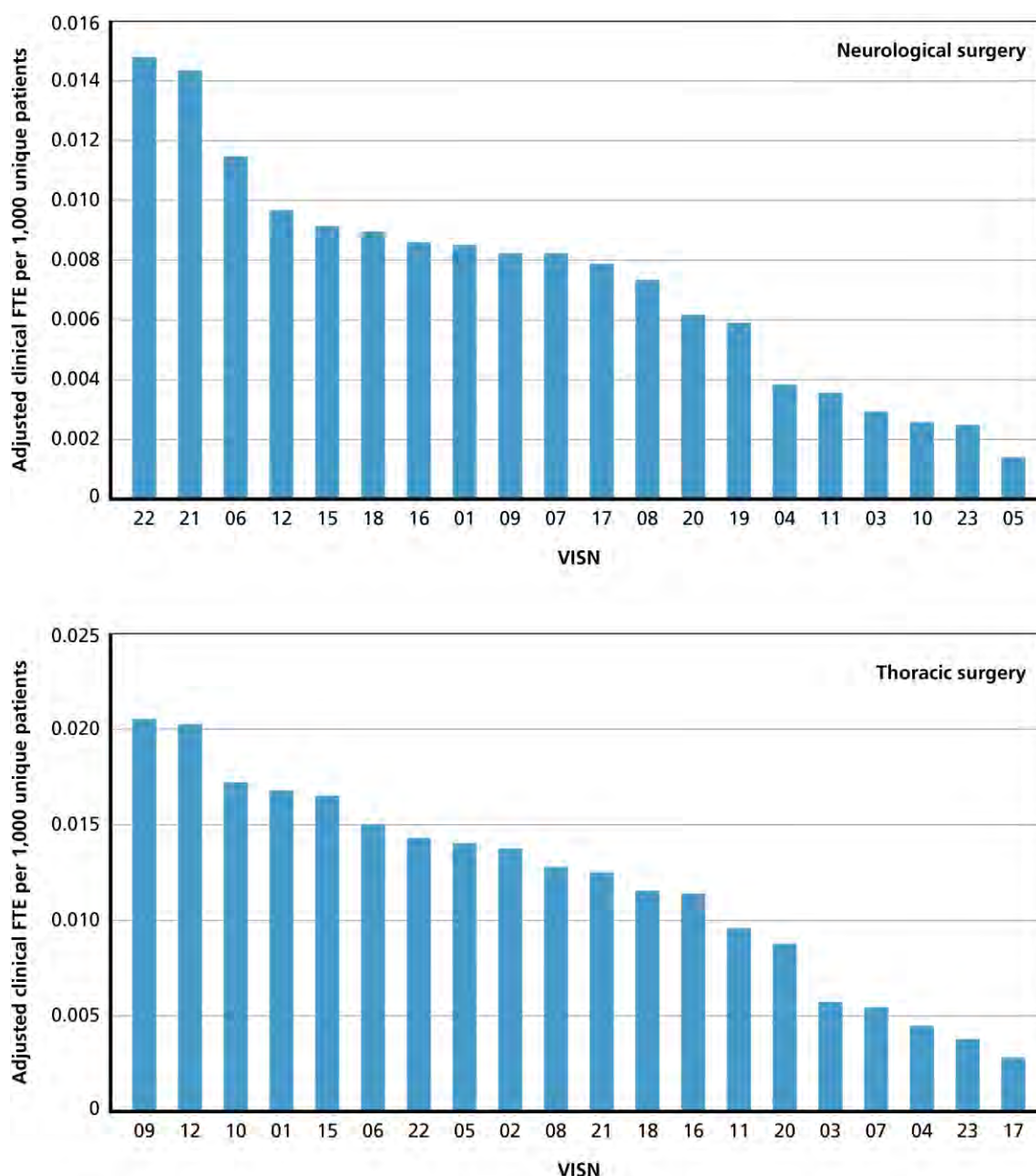
Specialty	Count of Facilities	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTE Per 1,000 Unique Patients at Each Facility—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Coefficient of Variation
Neurology	126	2.25 (1.44)	0.64	0.04 (0.02)	0.52
Hematology-Oncology	105	1.94 (1.15)	0.59	0.04 (0.02)	0.44
Thoracic surgery	67	1.14 (0.85)	0.75	0.02 (0.02)	0.84
Endocrinology	99	1.12 (0.71)	0.63	0.02 (0.01)	0.59
Neurological surgery	54	0.94 (0.63)	0.67	0.02 (0.01)	0.66
Obstetrics and gynecology	81	0.8 (0.61)	0.76	0.16 (0.10)	0.64

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

We also considered a measure that accounts for the number of patients seen in each facility: physician clinical FTEs per 1,000 unique patients who visited that facility in the past fiscal year. This measure allows for more comparable measurement across facilities, given that facilities can vary in size or number of affiliated sites, for example. In mental health, we found an average of 0.35 physician clinical FTEs per 1,000 unique patients, and, in emergency medicine, the facility average was 0.08 physician clinical FTEs per 1,000 unique patients. As expected, for most specialties, there was less variation across facilities in the number of providers per 1,000 unique patients than there was for total clinical FTEs. This likely reflects the fact that some of the variation across facilities in FTEs is explained by the size of the facility as measured by the total number of unique patients visiting that facility.

Some of this variation in FTEs per 1,000 could be explained by differences in regional practice patterns, differences in patient complexity, or differences in the use of contracted providers. For illustrative purposes, we also examined variation in the FTEs per 1,000 unique patients across VISNs. We found significantly less variation compared with the facility-level analysis. To illustrate the variation across VISNs, in Figure 3.2-1 we show the distribution for the specialties with the two highest coefficients of variation (neurological surgery and thoracic surgery). There is substantial variation in the FTEs per 1,000 patients in these two specialties. For example, for thoracic surgery, one VISN has as many as 0.02 clinical FTEs per 1,000 unique patients and another has as few as 0.001 clinical FTEs per 1,000 unique patients.

Figure 3.2-1. VA Clinical FTEs per 1,000 Unique Patients by VISN for Select Specialties, FY 2014



MS4675B-3.2-1

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

Notes: City hubs associated with each VISN are listed in Table 3.1-3. One VISN is missing from the neurological surgery figure because that VISN does not have any clinical FTEs dedicated to that specialty.

Furthermore, to account for this variation across VISNs, we also performed regression analysis to create estimated FTE values controlling for VISN and patient complexity level at each facility.

Although we do not show these estimates, they suggest that there is still significant variation across facilities that cannot be explained by region and patient complexity.

Finally, the variation that we observe across facilities should be interpreted with caution, particularly for some of the specialties with relatively low FTE numbers. Specialties with the highest coefficients of variation tend to be those with small provider counts. For example, while thoracic surgery shows high levels of variation across VISNs, the mean FTEs per 1,000 unique patients type is only 0.02. Thus, a difference of less than 0.04 FTEs per 1,000 unique patients between the VISNs with the highest and lowest number of FTEs seems substantial, though is less so in absolute terms.

Primary care physicians work across a number of different specialties at VA. Assessment G worked with the Office of Primary Care to identify which of the 15,543 physician clinical FTEs are currently working in primary care clinics. That process yielded 3,385 primary care physician clinical FTEs. Table 3.2-2 shows the average number of primary care clinical FTEs across facilities. On average, there are 24.2 primary care physician clinical FTEs per facility or 0.62 physicians per 1,000 unique patients. We found relatively less variation across VISNs (data not shown).

**Table 3.2-2. VA Primary Care Physician Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014**

Specialty	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTEs per 1,000 Unique Patients—Mean (Standard Deviation)	Clinical FTEs per 1,000 Unique Patients—Coefficient of Variation
Primary care physicians	24.18 (15.06)	0.62	0.62 (0.16)	0.26

Source: Authors' analysis of primary care data provided by Assessment G.

**Associate Providers.** Associate providers (that is, nurse practitioners, physician assistants, clinical nurse specialists, certified registered nurse anesthetists, and social workers) support and supplement the work of physicians in VA. In FY 2014, VA employed 21,141 associate providers who work either full-time or part-time, for a total of 15,386 worked FTEs. Associate providers spent 94 percent of their time in clinical work, for a total of 14,441 clinical FTEs. These clinical FTEs consisted of 3,626 nurse practitioners, 1,587 physician assistants, 396 clinical nurse specialists, 598 certified registered nurse anesthetists, and 8,221 social workers. These associate providers cannot easily be mapped to a particular specialty, so we provide only the overall number per facility. In Table 3.2-3, we present information on the associate providers per physician clinical FTE. For nurse practitioner, clinical nurse specialist, and physician assistant positions, we present the clinical FTEs per all physician clinical FTEs; for social workers, we use

## Assessment B (Health Care Capabilities)

mental health providers; and for certified registered nurse anesthetists, we use anesthesiologists. For all other associate providers, we use all providers as the denominator. The greatest variation across facilities was seen for clinical nurse specialists, with an average of 0.023 clinical FTEs per 1,000 unique patients and a coefficient of variation of 1.13.

**Table 3.2-3. VA Associate Provider Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014**

Specialty	Count of Facilities	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Coefficient of Variation
Social worker	140	26.95 (25.64)	0.95	0.57 (0.45)	0.80
Nurse anesthetist	112	5.34 (3.97)	0.74	0.098 (0.055)	0.56
Physician assistant	135	4.65 (4.75)	1.02	0.097 (0.097)	1.00
Nurse practitioner	140	4.37 (5.50)	1.26	0.090 (0.099)	1.11
Clinical nurse specialist	116	1.21 (1.43)	1.18	0.023 (0.026)	1.13

Data sources: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

Assessment G also identified which of the associate providers work in primary care. That process yielded 1,188 primary care NP clinical FTEs and 330 primary care PA clinical FTEs. Table 3.2-4 shows the average number of primary care associate provider clinical FTEs across facilities.

**Table 3.2-4. VA Primary Care Associate Provider Clinical FTEs Overall and Per 1,000 Unique Patients at the Facility Level, FY 2014**

Specialty	Count of Facilities	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients at Each Facility—Coefficient of Variation
Nurse practitioner	139	8.54 (5.42)	0.63	0.25 (0.14)	0.56
Physician assistant	103	3.2 (2.83)	0.88	0.09 (0.08)	0.88

Data sources: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

**Therapists.** Therapists also play a key role in caring for Veterans. In FY 2014, VA employed 5,615 FTE therapists, who spent 95 percent of their time in clinical work, for a total of 5,339 clinical FTEs. These clinical FTEs consisted of 1,793 physical therapists, 1,000 occupational therapists, 1,007 audiologists, 698 recreational therapists, 257 kinesiotherapists, 331 blind rehabilitation therapists, and 305 speech language pathology therapists. Table 3.2-5 presents the mean number of clinical FTEs across facilities by type of therapist. Physical therapists account for the largest number of clinical FTEs, on average, compared with the other therapist groups.

**Table 3.2-5. VA Therapist Clinical FTEs Overall at the Facility Level and Per 1,000 Unique Facility Patients, FY 2014**

Specialty	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTEs Per 1,000 Unique Patients—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients—Coefficient of Variation
Physical therapy	12.33 (7.83)	0.64	0.26 (0.11)	0.42

## Assessment B (Health Care Capabilities)

Specialty	Overall Clinical FTEs—Mean (Standard Deviation)	Overall Clinical FTEs—Coefficient of Variation	Clinical FTEs Per 1,000 Unique Patients—Mean (Standard Deviation)	Clinical FTEs Per 1,000 Unique Patients—Coefficient of Variation
Occupational therapy	7.28 (5.80)	0.80	0.15 (0.09)	0.60
Audiology	7.25 (4.50)	0.062	0.15 (0.05)	0.33
Recreation therapy	5.28 (4.68)	0.89	0.12 (0.12)	1.00
Kinesiotherapy	3.74 (3.82)	1.02	0.08 (0.07)	0.88
Blind rehabilitation	3.12 (4.58)	1.47	0.06 (0.08)	1.33
Speech language therapy	2.36 (1.83)	0.78	0.05 (0.03)	0.60
<i>Overall</i>	37.86 (24.98)	0.66	0.78 (0.34)	0.43

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

### 3.2.2.2 Workforce Productivity

In these analyses, specialty physician productivity is defined as work RVUs per physician clinical FTE. Work RVUs assigned to a particular procedure or office visit reflect the relative level of time, skill, training, and intensity needed to provide that service. Higher RVU work takes more time, more intensity, or both. Because of the way work RVUs are constructed, they are best used to compare productivity within specialties rather than across them. For primary care



## Assessment B (Health Care Capabilities)

services, VA productivity is measured using panel sizes. For therapists, productivity is measured as the number of encounters in a fiscal year. All of these are measured per clinical FTE. Assessment G examines physician productivity in detail and compares VA physician productivity to commercial benchmarks.

**Specialty Care.** The greatest variations in physician productivity were in neurosurgery and thoracic surgery, while the smallest variations were in internal medicine, neurology, mental health, and surgery (Table 3.2-6).

**Table 3.2-6. VA Work RVUs Per Physician Clinical FTE for Select Specialties at the Facility Level, FY 2014**

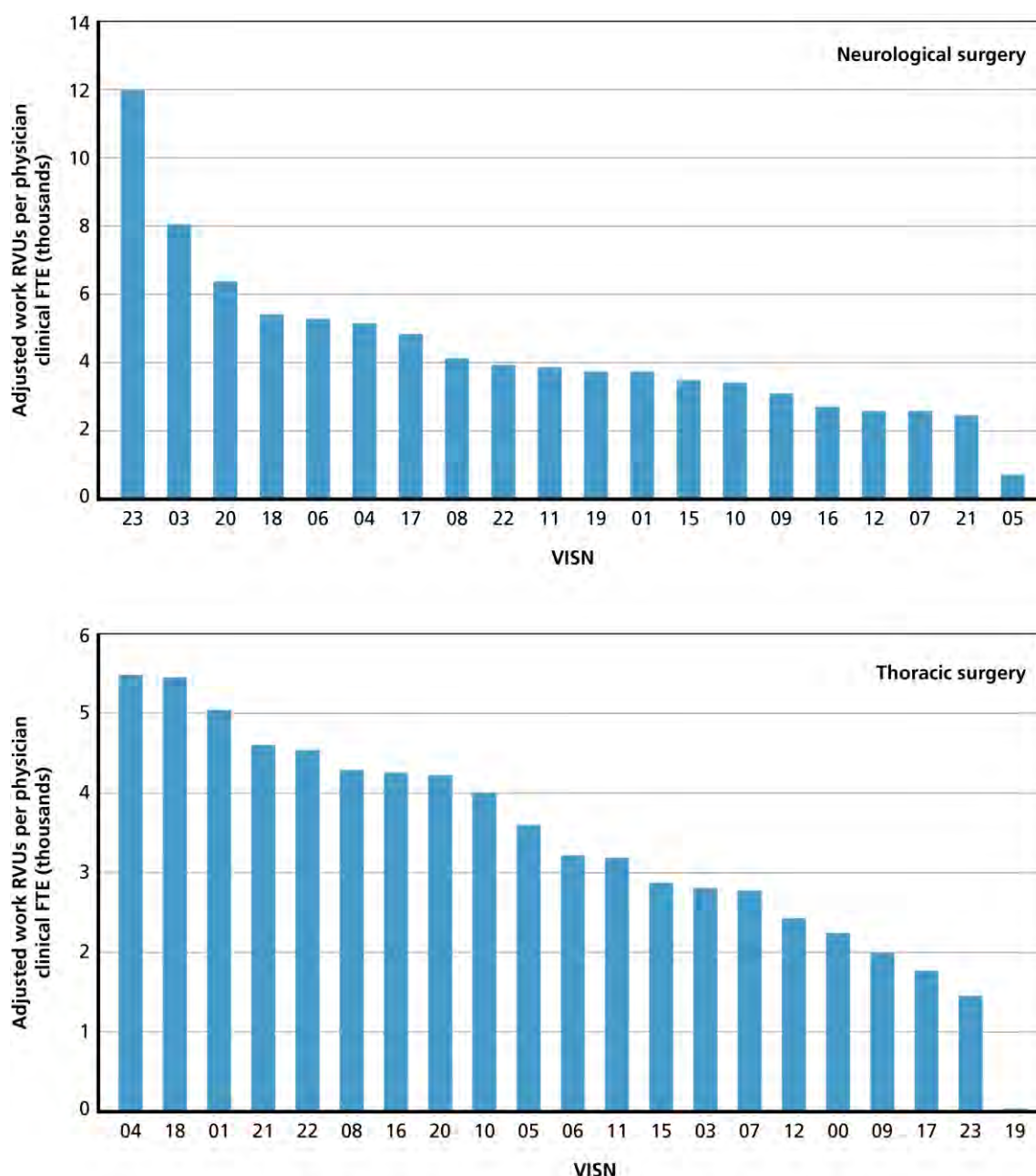
Specialty	Count of Facilities	Work RVUs— Mean (Standard Deviation)	Work RVUs— Coefficient of Variation
Gastroenterology	112	7,348 (3,414)	0.46
Cardiology	126	5,887 (2,379)	0.40
Neurological surgery	54	5,290 (11,116)	2.10
Surgery	126	3,874 (1,321)	0.34
Thoracic surgery	67	3,561 (2,781)	0.78
Hematology-Oncology	105	3,560 (1,531)	0.43
Emergency medicine	111	3,531 (1,552)	0.44
Endocrinology	99	3,496 (1,616)	0.46
Neurology	126	3,487 (1,161)	0.33
Physical medicine and rehabilitation	124	2,828 (1,230)	0.44
Obstetrics and gynecology	81	2,800 (1,314)	0.47
Internal medicine	140	2,768 (431)	0.16
Mental health	140	2,666 (498)	0.19

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports.

Some of this variation in productivity could be explained by differences in regional practice patterns or differences in patient complexity. To examine this, we also examined variation across VISN by physician specialty. In general, we found less variation in physician specialist productivity by VISN than by facility. However, there was still substantial variation across VISNs. Figure 3.2-2 shows the distribution of productivity per FTE for the two physician specialties with the largest variation (that is, neurological surgery and thoracic surgery). For example, for neurological surgery, one VISN has as many as 5,471 RVUs per FTE and another has as few as 38 RVUs per FTE.

Figure 3.2-2. VA Work RVUs Per Physician for Select Specialties at the VISN Level, FY 2014



Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

Notes: City hubs associated with each VISN are listed in Table 3.1-3. One VISN is missing from the neurological surgery figure because that VISN does not have any clinical FTEs dedicated to that specialty.

To further examine variation in productivity, we used regression analysis (as we did in the provider count estimates) to create estimated productivity values controlling for VISN and

## Assessment B (Health Care Capabilities)

patient complexity level at each facility. Although we do not show these estimates, they suggest that there is still significant variation across facilities that cannot be explained by region and patient complexity.

There is also significant variation in the productivity of associate providers across facilities. Table 3.2-7 shows that nurse anesthetists and clinical nurse specialists have the highest level of variation across facilities.<sup>19</sup>

**Table 3.2-7. VA Work RVUs Per Associate Provider at the Facility Level, FY 2014**

Specialty	Count of Facilities	Work RVUs—Mean (Standard Deviation)	Work RVUs—Coefficient of Variation
Physician assistant	135	1,913 (1,539)	0.80
Nurse practitioner	140	1,833 (1,511)	0.82
Clinical nurse specialist	116	1,746 (1,719)	0.98
Social worker	140	893 (544)	0.61
Nurse anesthetist	112	413 (995)	2.41

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment.

**Contracted Providers.** Most VA facility leaders we interviewed used either fee-basis or contract providers to some extent, based largely on the demand for services and the accessibility of specialty care. In many locations, the demand for certain services was too low to justify hiring full-time staff: “We have quite a few [fee-basis physicians], particularly in surgery because we can pay them higher and they’re intermittent, and it doesn’t make sense to hire a full-time person.” Most VAMCs were affiliated with university medical centers and relied on these facilities to provide a pool of contract and fee-based providers to supplement full-time VA staff. Interview respondents identified emergency department physicians, hospitalists, and surgeons as the specialties most often filled with contract or fee-based providers.

Table 3.2-8 reflects the percentage of all work RVUs (VA, contract, residents, and other employees) attributed to fee-basis and other (providers without a labor mapping) physicians

<sup>19</sup> Clinical nurse specialists are doctoral- or masters- prepared advanced practice registered nurses who function in a variety of capacities, such as quality improvement, nursing education, and diagnosis and treatment of specific patient population.

and associate providers across facilities that use contracted physicians. Overall, fee-basis and other providers account for about 10.7 percent of total work RVUs. Fee-basis and other specialist physicians and associate providers account for 12.5 percent and 6.2 percent, respectively, across all specialties. Emergency medicine has the highest proportion of RVUs attributed to contract physicians (29.68 percent), while physician assistants account for the highest proportion among associate providers (8.56 percent).

**Table 3.2-8. Percentage of Total Work RVUs Attributed to Fee-Basis and Other Physicians and Associate Providers at the Facility Level, FY 2014**

Specialty	Count of Facilities	% of Total Work RVUs
Emergency Medicine	123	29.68
Neurological Surgery	69	28.66
Thoracic Surgery	85	28.46
Gastroenterology	122	12.23
Obstetrics & Gynecology	104	11.52
Internal Medicine	140	11.32
Surgery	134	10.23
Neurology	133	8.46
Cardiology	137	7.98
Endocrinology	111	6.78
Hematology-Oncology	119	5.97
Physical Medicine & Rehabilitation	128	5.03
<i>Overall</i>		12.50
<b>Associate Providers</b>		
Physician Assistant	137	8.56
Nurse Practitioner	140	7.34
Social Worker	141	2.90
<i>Overall</i>		6.20

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

However, many interview respondents described challenges with using fee-basis and contract providers. Most respondents preferred to hire full-time staff, primarily for accountability and stability reasons. Some described significant disadvantages to using contract providers compared with fee-basis or full-time providers, including the cost per FTE, the time required to negotiate contracts, and the degree of accountability: "Even though you can put items in a

contract that you hold people accountable to, they're not as accountable as people who actually work for you and are long term and are devoted to [the facility] and its Veterans." For these reasons, most respondents preferred to use fee-basis providers to fill in gaps. Other perceived advantages of fee-basis providers included flexibility, lower cost per FTE, and higher productivity: "Fee is more of a productivity model. So folks tend to be productive if they're working in a fee arrangement versus a salaried arrangement."

**Primary Care.** We examined the productivity of primary care providers by examining the mean panel sizes per clinical FTE within each parent facility for general primary care (Table 3.2-9). In 2014, the mean panel size was 1,128 patients per physician FTE and 874 patients per associate provider FTE, with moderate variation across facilities.

As mentioned in Section 3.2.1.1, VA uses the Primary Care Management Module to model panel size expectations per provider FTE at the facility level, adjusting for levels of support staff, space, and patient complexity. VA facilities can further adjust the models to set their own maximum panel sizes for their providers based upon local factors and using the guidance in the PCMM handbook. For example, a facility may set a lower maximum panel size for a new provider or for a provider serving a population with special needs.

We compared the actual mean panel sizes at each facility to the modeled and maximum panel size targets for each facility to identify facilities that appear to have "excess" capacity.<sup>20</sup> We identified a facility as having "excess capacity" if its panel sizes were less than their modeled or maximum panel sizes. We found that 75-91 percent of all facilities had excess capacity among their physicians' panels to manage more primary care patients, whereas between 67-72 percent of facilities had excess capacity among their associate providers' panels.

**Table 3.2-9. VA Panel Size Per Primary Care Provider Clinical FTE, September 30, 2014**

	Average Panel Sizes Per Clinical FTE—Mean (Standard Deviation)			Proportion of All Facilities with Excess Capacity Based on:	
	Actual Panel Size	Modeled Panel Size	Maximum Panel Size	Modeled Panel Size	Maximum Panel Size
Physicians	1,128 (165.8)	1,306 (71.8)	1,207 (161.8)	90.6%	75.0%
Associate providers	874 (197.2)	982 (62.3)	940 (194.4)	71.8%	66.9%

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G (September, 2014).

<sup>20</sup> Memphis (TN) VAMC and its associated clinics are currently piloting a new version of the Office of Primary Care's Primary Care Management Module. As a result of the ongoing pilot, data from these sites was unavailable and is therefore excluded from our analysis.

The fact that a large proportion of facilities have “excess capacity” in their primary care panel might be interpreted in three potentially contradictory ways. First, these findings might suggest that VA facilities have more than sufficient numbers of primary care providers to provide required primary care for VA patients. Second, this data may also suggest that significant productivity constraints limit the number of patients facilities can manage in their panels, meaning that they are unable to meet their panel size targets. Third, it is possible that the VA algorithm for assessing panel sizes overestimates the number of patients that primary care providers can manage. Findings from the 2015 Survey of VA Resources and Capabilities and qualitative interviews provide some insight into this issue (discussed in more detail below). Survey data shows that VA facility representatives view primary care physicians as some of the most difficult providers to recruit and retain in VA facilities. The qualitative interviews indicate that primary care providers’ have difficulty seeing as many patients as staffing models would expect due to issues with information technology and support staff. Altogether, the data suggests that there are likely capacity constraints among primary care providers, but the data cannot provide conclusive evidence regarding the nature and scope of the constraints.

**Therapists.** Finally, we also examined variation in productivity among therapists across administrative parent facilities. We found substantial variation across facilities in the number of annual encounters per therapist (Table 3.2-10). The most variation across parent facilities was in recreation therapy, kinesiotherapy, and blind rehabilitation therapy. The number of encounters per therapist, however, does not account for the intensity of the encounters or the case mix at the facility, which may differ systematically across types of therapy. Therefore, comparisons within a particular category are more useful than comparisons across types for understanding differences in productivity.

**Table 3.2-10. VA Encounters Per Therapist Clinical FTE at the Facility Level, FY 2014**

Specialty	Mean (Standard Deviation)	Coefficient of Variation
Recreation therapy	2,136 (1,736)	0.81
Audiology	2,000 (598)	0.30
Kinesiotherapy	1,811 (1,232)	0.68
Physical therapy	1,631 (448)	0.27
Occupational therapy	1,420 (554)	0.39
Speech language therapy	1,191 (372)	0.31

Specialty	Mean (Standard Deviation)	Coefficient of Variation
Blind rehabilitation	850 (433)	0.51

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G.

**Subsection Summary.** In this subsection, we described current numbers (as of FY 2014) of key provider types currently working in the VA system by total numbers of provider clinical FTEs as well as the number of clinical FTEs per 1,000 patients at a facility. We also described the relative productivity of various provider types. We found significant variation across facilities and VISNs in terms of provider counts and productivity. The greatest variations in physician productivity were in neurosurgery and thoracic surgery, while the smallest variations were in internal medicine, neurology, mental health, and surgery.

### **3.2.3 Specialties with Potentially Insufficient Workforce Capabilities**

In this subsection, we attempt to identify specialties for which the current workforce capabilities have had the greatest challenges providing timely care to patients. To do this, we first present results from an analysis of wait-time data by specialty, as longer wait times could potentially signal insufficient workforce capabilities. We then present related findings from the literature review and interviews. In Subsection 3.2.4, we attempt to identify workforce-related challenges to providing timely care within specialties that have potentially insufficient capabilities.

#### **3.2.3.1 Wait-Time Data by Specialty**

We first analyzed VA wait-time data to identify the specialties with the longest wait times among the 12 specialties discussed in Subsection 3.2.2, comparing wait times across all these specialties. To measure wait times, we used four specific measures, including the percentage of appointments completed within 30 days of preferred date and the mean wait time in days from preferred date, measured both for new and established patients. The data were collected from the VA SPARQ tool. We found that wait times were longest for neurological surgery, neurology, gastroenterology, and physical medicine and rehabilitation (Table 3.2-11).



**Table 3.2-11. VA Wait Times for New and Established Patients by Specialty at the Facility Level, FY 2014**

Specialty	New Patients—% of Appointments Completed Within 30 Days of Preferred Date	New Patients—Mean (Standard Deviation) Wait Time in Days from Preferred Date	Established Patients—% of Appointments Completed Within 30 Days of Preferred Date	Established Patients—Mean (Standard Deviation) Wait Time in Days from Preferred Date
Neurological surgery	90.0	8.73 (11.36)	96.2	5.78 (9.44)
Neurology	92.4	7.06 (6.93)	94.9	5.41 (4.91)
Gastroenterology	92.3	6.61 (9.82)	95.5	4.82 (5.94)
Physical medicine and rehabilitation	94.1	6.47 (7.07)	96.6	3.81 (3.06)
Internal medicine	92.9	4.95 (6.29)	97.8	2.60 (2.01)
Endocrinology	96.1	4.25 (5.73)	96.6	3.72 (3.58)
Surgery	96.9	4.25 (3.56)	98.7	2.68 (2.07)
Obstetrics and gynecology	96.4	4.06 (3.79)	97.6	2.82 (2.30)
Cardiology	96.8	2.86 (3.78)	97.0	3.59 (7.73)
Hematology-Oncology	99.0	2.11 (3.77)	99.2	1.78 (1.61)
Thoracic surgery	99.1	2.03 (2.53)	99.1	2.33 (4.63)
Mental health	98.6	1.56 (3.14)	98.8	1.12 (2.29)

Sources: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G; VA wait-time data for FY 2014 and the first half of FY 2015 obtained from VSSC by The MITRE Corporation.

We recognize that the wait-time variables are imperfect measures and that the “preferred date” may have relatively low validity and reliability. Therefore, wait times should not be viewed as a reliable estimate of the actual number of days that a patient must wait for an appointment. The VA wait-time data and standards are discussed in greater detail in Subsection 4.2.1.

Although the number of patients receiving appointments within 30 days is quite high across all specialties (that is, greater than 95 percent for established patients and greater than 90 percent for new patients), there are significant outliers across the facilities in terms of the average number of days that a patient has to wait; we have identified these differences as having high versus low wait times. We identified facilities as having high wait times for a given specialty if the average wait time for new patients for that specialty was above the 75th percentile of the

## Assessment B (Health Care Capabilities)

wait-time distribution. The difference in average wait times was roughly 10 days between facilities with low (2.07 days) versus high (11.67 days) wait times. In Table 3.2-12, we show that these patterns hold across specialties. All of the differences in wait times are statistically significant.

**Table 3.2-12. VA Average Wait Times Across Facility-Specialty Combinations with High Versus Low Wait Times**

Specialty	Low Wait Times— Number of Facilities	Low Wait Times— Mean (Standard Error) Wait Time in Days from Preferred Date for New Patients		High Wait Times— Number of Facilities	High Wait Times—Mean (Standard Error) Wait Time in Days from Preferred Date for New Patients	
Cardiology	114	2.09	(0.14)	11	9.91	(1.28)
Endocrinology	72	2.26	(0.15)	26	10.15	(0.85)
Gastroenterology	69	2.48	(0.16)	40	13.37	(1.60)
Hematology-oncology	98	1.56	(0.13)	6	8.04	(0.91)
Internal medicine	99	2.69	(0.13)	40	10.26	(0.84)
Mental health	135	1.40	(0.07)	4	6.39	(0.33)
Neurological surgery	27	1.85	(0.27)	21	16.96	(2.25)
Neurology	65	3.03	(0.20)	58	12.10	(1.00)
Obstetrics and gynecology	55	2.41	(0.20)	22	9.58	(0.63)
Physical medicine and rehabilitation	64	2.38	(0.19)	49	12.02	(1.12)
Surgery	86	2.30	(0.15)	37	8.80	(0.38)
Thoracic surgery <sup>^</sup>	59	1.72	(0.90)	1	17.43	—
<i>Overall*</i>		2.13	(0.04)		11.41	(0.40)

Sources: Authors' analysis of VISTA New Person File, VISTA Patient Care File, and Monthly Program Cost Reports provided by Assessment G; VA wait-time data for FY 2014 and the first half of FY 2015 obtained from VSSC by The MITRE Corporation

+We report standard errors in this table (as opposed to standard deviations) as they were used as the basis for statistical testing.

<sup>^</sup>Only one facility had high wait times for thoracic surgery.

\*Across all facility-specialty combinations.

### **3.2.3.2 Literature Review, Interview, and Survey Results on Specialty Workforce Capacity**

The literature reviews, qualitative interviews, and 2015 Survey of VA Resources and Capabilities identified a number of specialties with potentially insufficient workforce capacity. The 2014 VA Interim Workforce and Succession Strategic Plan reported five challenging specialties related to retaining and recruiting physicians and for which demand is growing, including gastroenterology, cardiology, psychiatry, orthopedic surgery, and primary care. In the analysis of wait times, we also identified gastroenterology as a specialty with potentially insufficient workforce capabilities, and 67.3 percent of respondents to the survey reported challenges hiring and retaining gastroenterologists. We did not find high wait times for psychiatry, but respondents to the survey reported significant challenges in hiring (82.6 percent) psychiatrists. We also found relatively low wait times for cardiology, and relatively few respondents reported difficulty hiring and retaining cardiologists. The 2014 Strategic Plan noted that they also had difficulty hiring orthopedic surgeons. Although we did not include orthopedic surgery in Table 3.2-11, the specialty did have relatively high wait times (7.8 days) compared with other specialties. There are no wait times specifically attributable to the “primary care” providers that we discussed in Subsection 3.2.2, but in the 2015 Survey of VA Resources and Capabilities, 71.8 percent of the responding chiefs of staff reported difficulty recruiting or retaining primary care physicians.

In our interviews, multiple respondents identified 12 specialties and provider types with shortages: mental health, urology, orthopedic surgery, hospitalist, physical therapy, eye care (ophthalmology and optometry), audiology, ear-nose-and-throat, dermatology, vascular surgery, general surgery, and neurology. However, the number of interviews was small, so the results cannot be used to identify systematic shortages across these disciplines. We did, however, find substantial wait times in neurology data, which accords with the interviews.

In terms of the literature review, we did not identify peer-reviewed articles that discuss VA capacity constraints across all these specialties; thus, we focus our discussion on the five specialties mentioned in the 2014 Strategic Plan.

**Psychiatry and/or Mental Health.** This was the most commonly mentioned shortage in the interviews, with about one-third of respondents indicating a shortage at their facility. Like many other specialties, the psychiatry workforce is aging; the average psychiatrist is older than 55, and the proportion younger than 40 is declining (Scully & Wilk, 2003). Psychiatrists are in high demand, largely because of increased rates of PTSD from recent combat operations (Tanielian & Jaycox, 2008). Although PTSD is certainly contributing to an increase in demand for mental health services, VA enrollees suffer from a high rate of mental health burden. In fact, Assessment A found that approximately 50 percent of VA patients had at least one mental health diagnosis, including depression and anxiety disorders. VA mental health staffing shortages were frequently discussed in the literature (VA, Office of Inspector General, 2015a). A 2011 survey noted identified that 71 percent of mental health professionals thought that the number of mental health personnel in their VA medical center was not adequate (VA, Office of Inspector General, 2012b). Though the specialty’s growth rate, which is the annual net increase in providers from the previous year, jumped from 2.4 percent in FY 2012 to nearly 7 percent the

following year (as a result of a mental health hiring initiative), psychiatry also had the second-highest loss rate in VA (8.9 percent) in FY 2013, primarily due to providers quitting (Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014).

**Gastroenterology.** National projections of the gastroenterologist workforce predict supply shortages and rising demand, tied largely to increased rates of colorectal cancer screening and an aging population. For example, Dall et al. (2009) predict a shortfall by 2020. The 2014 Strategic Plan noted that for VA, gastroenterology had one of the highest demand growth rates in FY 2012. Powell et al. (2009) surveyed 95 percent of VAMCs to assess how quality initiatives were affecting follow-up with patients who had positive colorectal cancer screenings. Gastroenterology capacity constraints were the most commonly cited barrier to timely follow-up (Powell et al., 2009). Similarly, a report investigating gastroenterology consult delays at the VAMC in Columbia, S.C., identified suboptimal staffing as a factor (VA, Office of Inspector General, 2013). Most gastroenterology managers and clinicians we interviewed described staffing deficiencies caused by positions not being filled, difficulty getting approval for new hires, and shortages in support staff including nurses and clerks.

**Orthopedic Surgery.** There is very little literature that directly examines the VA orthopedic surgery workforce, which had VA's highest total loss rate in FY 2013 at 9.9 percent (Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014). However, a 2013 GAO report that touched on the frequency of VAMCs referring patients to non-VA providers (purchased care) for orthopedic surgery services cited facility size, limitations in the recruitment of needed specialists, and lack of providers who can assist in the event of a complication during surgery (GAO, 2013c). A 2013 VA survey of 152 VAMCs found that, of the 113 that provide inpatient surgery, 96 percent (109) offered orthopedic specialty procedures (VA, 2014a). In total, 414 surgeons were VA-paid, 156 were contracted, and 199 were fee-based.

**Cardiology.** A 2012 VA Office of Inspector General report identified cardiology as one of 33 physician specialties with lower than expected productivity levels (VA, Office of Inspector General, 2012a). Dall et al. (2009) found, at the national level, a current shortage and predicted it would worsen over the next 20 years. The study projected greater demand for cardiology services because of an aging population and a workforce nearing retirement (43 percent are older than 55). Fye (2004) predicted a 20 percent decrease in the age-adjusted supply of cardiologists by 2020 and a likely increase in demand resulting from increased incidence and prevalence of cardiovascular disease tied to population aging and obesity (Fye, 2004). While these trends are not VA-specific, they are relevant, as VA competes for cardiologists in the national market.

**Primary Care.** Even though the primary care workforce is the fastest growing in VA, recent media reports and the 2014 Strategic Plan have identified primary care as having potential capacity constraints (Oppel Jr., 2014; Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014). The U.S. Health Resources and Services Administration reported on the adequacy of future primary care supply to meet demand (Health Resources and Service Administration, 2013). Nationally, the demand for

primary care services is forecasted to grow more rapidly than primary care supply, due largely to an aging and growing population and the expansion of insurance coverage following health care reform. The 2014 Strategic Plan highlights shortages in primary care physicians, driven by higher demand from a patient population that is aging and has a greater proportion of women, who tend to use more primary care services than their male counterparts.

### 3.2.3.3 Subsection Summary

In this subsection, we attempted to identify particular specialties that have potential capacity constraints. We found that a number of specialties likely have potential capacity constraints. Although the various data sources used suggested that there are capacity constraints across various and often divergent specialties, our data analyses suggest further that there are potential significant capacity constraints within orthopedic surgery, neurology, gastroenterology, psychiatry, and primary care.

### 3.2.4 Potential Causes of Capacity Constraints

Drawing on wait-time and productivity data as well as the interviews, literature review, and 2015 Survey of VA Resources and Capabilities, this subsection discusses why workforce-related capacity constraints might exist.

To better understand what is driving the differences in wait times, we compared productivity across facility-specialty combinations. If productivity values are significantly lower at facilities with high wait times, one could conclude that differences in wait times are likely driven by differences in relative productivity. Conversely, if productivity is generally equivalent across high- and low-wait-time facilities or if productivity at facilities with high wait times is significantly higher compared with facilities with low wait times, this would suggest that high wait times are likely driven by an insufficient number of providers.

In Table 3.2-13, we compared productivity estimates across facility-specialty combinations with low versus high wait times. The productivity estimates are not significantly different across the vast majority of specialties. This supports the hypothesis that differences in wait times across facilities are likely largely driven by insufficient numbers of providers, as opposed to productivity deficits across the facilities with high wait times. For the one specialty for which the productivity estimates are different (gynecology), productivity was higher for high-wait-time facilities. For one specialty (mental health), productivity was significantly lower in high-wait-time facilities, suggesting that some of the difference in wait times may be attributable to relative productivity across facilities.

**Table 3.2-13. VA Average Productivity Across Facility-Specialty Combinations with High Versus Low Wait Times**

Specialty	Low Wait Times— Mean RVUs (Standard Error)	High Wait Times—Mean RVUs (Standard Error)
Cardiology	6,758	6,509

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Specialty	Low Wait Times— Mean RVUs (Standard Error)	High Wait Times—Mean RVUs (Standard Error)
	(967)	(841)
Endocrinology	3,550 (200)	3,369 (279)
Gastroenterology	7,522 (408)	7,206 (559)
Hematology-oncology	3,594 (157)	2,782 (297)
Internal medicine	2,794 (46)	2,700 (55)
Mental health*	2,678 (43)	2,248 (192)
Neurological surgery	3,770 (421)	8,107 (3820)
Neurology	3,499 (147)	3,549 (146)
Gynecology*	2,588 (153)	3,497 (332)
Physical medicine and rehabilitation	2,798 (156)	3,060 (170)
Surgery	3,854 (145)	3,987 (211)
Thoracic surgery^	3,634 (372)	1,407 (NA)

Sources: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G; VA wait-time data for FY 2014 and the first half of FY 2015 obtained from the VSSC by The MITRE Corporation

\* Statistically significant difference at  $p < 0.05$ .

^Only one facility had high wait times for thoracic surgery.

+We report Standard Errors in this table (as opposed to standard deviations), as they were used as the basis for statistical testing.

To further explore the relationship between provider counts, productivity, and wait times, we performed a regression analysis. We regressed average wait times from preferred date for new patients on productivity and clinical FTEs per 10,000 unique patients, controlling for facility

complexity and specialty. We use FTEs per 10,000 unique patients, as opposed to 1,000 unique patients, to generate coefficients that are of an interpretable magnitude. Because wait times were heavily skewed, we constructed the dependent variable as the natural logarithm of wait times. We found that FTEs per 10,000 unique patients were negatively associated with wait times. That is, an increase in the FTEs per 10,000 unique patients would be expected to be associated with a decrease in wait times. We found no statistically significant relationship between productivity and wait times. Table 3.2-14 lists the coefficient, standard error, and p-value for the two variables of interest in the regression model. According to this model, a one-unit increase in clinical FTEs per 10,000 patients is associated with an 8.77 percent decrease in average wait times for a given specialty. This suggests that, consistent with our previous hypothesis, problems with timely access seem to be associated primarily with provider counts as opposed to productivity.

**Table 3.2-14. Effect of VA FTEs per 10,000 Unique Patients and Productivity on Wait Times**

Variable	Coefficient	Standard Error*	P-Value
Productivity	0.0000034	0.0000045	0.459
Clinical FTEs per 10,000 unique patients	-0.08768	0.024	<0.001

Source: Authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports.

Note: \*Standard errors clustered by facility.

Consistent with our analysis of the wait-time and productivity data, interview respondents cited insufficient numbers of providers, driven by various challenges in hiring and retaining VA staff. Interviewees, however, also noted a number of other issues that hamper provider productivity in their facilities. We were often unable to tie these challenges to any specific specialty, so we provide an overview of these challenges more generally. Assessment G reviews the evidence on these issues in more detail.

### 3.2.4.1 Hiring

More than half the facilities interviewed indicated that they had insufficient funds to hire additional staff. Respondents cited "FTE caps" and funding earmarked for specific provider types that could not be used to hire others. One respondent noted that the caps do not correspond to local demand: "You have to also be able to increase your full-time equivalent to be able to address that demand. For us for several years we've been under an FTE cap, which has prevented us from being able to bring in and grow the number of people that we need."

Moreover, while staffing models and business case analyses may call for facilities to add staff, most respondents indicated that having adequate space for them to work is a challenge. Expanding space takes much longer than hiring new providers, so the problem can take years to resolve. Respondents also noted that adding physicians generates additional demand for ancillary services: "When you talk about expanding providers and talking about extra space, then you're also talking about hiring additional environmental management staff, you're talking

about extra burden on pharmacy, lab, pathology, radiology. All of those other services also have an impact.”

The large majority of respondents indicated that noncompetitive salaries compared with the private sector and the proximity of university-affiliated and private facilities make it difficult to recruit VA providers. VA Central Office sets pay tiers for each job classification, specifying minimum and maximum annual salaries that facilities can offer. Respondents indicated that they struggled with recruiting providers, even at the high end of pay tiers: “When you get into dermatology, neurosurgery, those kinds of things, the top of our pay scale is sometimes at best half of what they would make in the private sector.” Table 3.2-15 shows that VA salaries are indeed well below the private practice averages and are sometimes commensurate but generally lower than academic medical center practices, upward of 35 percent lower in the case of neurological surgery. Endocrinology is the only exception, with VA salaries averaging slightly higher than academic medical center salaries, though still lower than private-practice salaries.

**Table 3.2-15. VA Physician Total Compensation Compared with Non-VA Physicians**

<b>Specialty</b>	<b>VHA Average</b>	<b>MGMA Private Practice Mean</b>	<b>MGMA Academic Practice Mean</b>
Cardiovascular disease	\$269,023	\$441,777	\$277,180
Emergency medicine	\$225,648	\$327,441	\$273,045
Endocrinology	\$202,594	\$238,418	\$180,372
Gastroenterology	\$270,615	\$553,574	\$299,531
Hematology-oncology	\$223,973	\$484,558	\$258,012
Internal medicine	\$195,287	\$250,348	\$196,582
Neurological surgery	\$350,011	\$794,217	\$557,880
Neurology	\$202,290	\$298,000	\$207,613
Obstetrics and gynecology*	\$234,595	\$344,661	\$253,485
Physical medicine and rehabilitation	\$216,649	\$274,871	\$233,599
Surgery	\$283,111	\$415,368	\$337,014
Thoracic surgery	\$329,624	\$519,688	\$443,425

Source: VA analysis of VA PAID Cube, Medical Group Management Association (MGMA) Academic Survey 2014, 2013 data, MGMA Physician Compensation and Production Survey 2014 provided by Assessment G.

Note: \*While VA does not have obstetrics, only combined obstetrics and gynecology metrics are available in the MGMA dataset.



Local market characteristics also contribute to staffing shortages. All respondents described challenges hiring at least one specialty—most frequently mental health, urology, orthopedic surgery, physical therapy, and hospitalists. Rural facilities experienced particular difficulties: “It’s also very difficult to get specialists into small clinics because they prefer to live in the city where they have potential for income and their families want to live.”

Once a job offer is made, inefficiencies in the privileging and credentialing process and bureaucratic requirements for salary negotiation make bringing providers on staff a long process: “Every time I have an open position I’m amazed by the number and the quality of the applicants that I get. But the H[uman] R[esources] process is in a state of utter paralysis.” Not only does this make hiring new staff laborious, but it also means that often VA will lose otherwise interested and qualified candidates. The interview data conform to previous independent recommendations VA needed a more streamlined system for on-boarding new staff (Northern Virginia Technology Council, 2014).

Data from the 2015 Survey of VA Resources and Capabilities provide additional information about the challenges VA faces in hiring and retention. The survey asked facility leadership about difficulties in hiring and retaining particular categories of staff, related to the treatment of the illustrative clinical populations (for example, TBI, PTSD, colon cancer). In addition, chiefs of staff were asked about personnel categories that spanned multiple conditions. For those facilities reporting that there were difficulties in recruiting or retaining staff in the given category, respondents were asked about barriers to recruitment and retention. We provide descriptive statistics for the two illustrative specialties with significant reported hiring problems for physicians (that is, primary care and mental health). For primary care providers, the top two reasons for problems in recruiting were the geographic location of the facility (46.5 percent) and noncompetitive wages (47.7 percent). The top two reasons for difficulty hiring problems for psychiatrists were noncompetitive pay (60 percent) and the geographic location of the facility (36.8 percent).

### 3.2.4.2 Retention

Much of the literature and many of the interviews discussed issues with retaining VA employees. Although the previous subsection focused largely on physicians, this subsection also includes information about VA leadership, all staff, care teams, and providers. According to the 2014 Strategic Plan, VA lost more than 100,000 employees from 2008 to 2012, of which 47 percent resigned or were transferred and 34 percent retired (Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration, 2014), and hired a total of 164,135 employees to maintain and grow the workforce. Despite these losses, VA’s annual turnover (4.3 percent in 2013) or “quit rate,” which does not include voluntary retirements or external transfers, is lower than the health care industry’s as a whole (16.5 percent).

Studies on VHA staffing have focused on job satisfaction and burnout as a source of retention problems (Garcia et al., 2014; Helfrich et al., 2014; Mohr, Bauer, & Penfold, 2013; Salyers et al., 2013; Teclaw & Osatuke, 2014; Weeks, Wallace, & Wallace, 2009). “Burnout” is distinct from poor job satisfaction in that it is “characterized by emotional exhaustion, depersonalization,

and a low sense of personal accomplishment.” Facility leaders we interviewed similarly identified burnout as an issue, particularly in primary care. Operational issues, including technological challenges stemming from new VA initiatives, and a once advanced but increasingly outdated health IT system, were said to be causing burnout, rather than helping to relieve it.

VA processes lead to frustrations for providers, particularly related to the level of oversight and a perceived lack of resources to provide the type of care providers would prefer:

Most docs and clinical people really want to provide excellent care, and they just get frustrated when they can’t do it, when something is getting in the way of it. . . . It’s almost like on the administrative side we don’t trust that the clinical folks will do the right thing. And again, that seems like an ingrained institutional impediment to success.

As with recruiting, respondents commonly cited the inability of facilities to offer competitive salaries and benefits (for example, educational debt reduction plans). This is particularly problematic in areas where geographic pay adjustments differ significantly between regions geographically close to one another:

The second a provider or someone else like a mental health professional walks on board. . . . they’re immediately looking for their next job down south where they can increase their pay and automatically get that higher geographic adjustment... so we have extremely high turnover in areas where the geographic pay is not matched out in the rest of the system.

As with the recruitment questions on the survey, we also asked a number of questions related to retention problems to supplement the interview findings. Again, we provide illustrative results for two specialties, primary care and psychiatry, for which respondents reported significant difficulty retaining providers. For primary care physicians, the top two reasons for retention problems were dissatisfaction with supervision and management support as well as dissatisfaction with workload. For psychiatrists, the top two reasons were dissatisfaction with workload (43 percent) and dissatisfaction with pay (38 percent). These were followed closely with burnout (33 percent). 40.4 percent of facilities reported that burnout was the top reason for retention problems with psychologists. The second reason was lack of opportunity for professional growth or promotion (38 percent).

### 3.2.4.3 Productivity

All respondents described resource constraints related to provider productivity at their facilities. They cited infrastructure issues (for example, space shortages, medical technology shortages), challenges with appointment scheduling, increased clerical tasks from new initiatives, a lack of support and clerical personnel, and cultural issues among VA providers and support staff that inhibit efficient patient care.

As described previously, most leaders we interviewed were actively trying to add space to accommodate new provider staff, as well as make existing staff more productive. Certain specialties may be more affected by infrastructure challenges due to their need for specialized

work spaces: “We’re impacted by the number of operating rooms that are available and have to schedule around them, which sometimes can be challenging when you’ve got five specialties that all want to operate on the same day.”

Respondents also described provider frustration with medical record alerts, scheduling system malfunctions, and scheduling mistakes that inhibit their efficiency. Most facility leaders described frustrations with VA’s CPRS, including an overwhelming number of patient alerts that providers must review: “Let’s say I order lab work or an X-ray on a person or a consult. . . . From the day I do it, anything else that happens to that thing, I get a view alert on it. . . . That has been driving [providers] nuts.” Interviewees perceived that these challenges reduced providers’ overall productivity.

Scheduling challenges were also relevant to telehealth appointments. While the availability of remote visits increase access to care for patients in remote areas, implementing technology and scheduling processes puts a strain on the host facility:

One of the challenges with Tele visits has been that there’s almost been this assumption that it in some way will either make docs more productive or overcome some of the staffing challenges. . . . There’s still somebody on the other end that’s having to be there for that appointment. And they often take more time than it does to do a face-to-face.

Interviews with facility leaders suggest that productivity may be negatively impacted by providers doing too many administrative or other below-license tasks: “What I hear from a lot of the individual docs is that a lot of their time is spent on ‘view alerts’ . . . which are not really relevant or necessary in the process of taking care of a patient, or on completing various paperwork electronically that, for one reason or another in the VA system it’s not allowed for someone else to do that work.” Additionally, facility leaders reported that new screening and prevention protocols add tasks to providers’ workloads that are often performed by lower-level staff in the private sector.

You’ll have a doc that’s working without an assigned nurse, with a rotating clerk who may or may not be very familiar with how to be scheduling patients in that area. And it may be a different person the next week. There’s clinics where the docs have to be the ones to go out to the waiting room to find the patients to bring them back to check their vital signs, et cetera. . . . That’s not an efficient way to be able to utilize very expensive staff, and it keeps them from being able to see the volume of patients that they could see.

Physician assistants and nurse practitioners could perform some of the care coordination and other duties, but VA policy limits the privileges of advanced practice providers, with nurse practitioners experiencing greater limitations to their prescribing authority: “Nurse practitioners who are licensed independent practitioners, however, cannot prescribe typically to the extent of their license. Or nurses who can’t do certain protocols because we implement procedures that will not allow them to do that.”

All respondents indicated that their facilities have implemented the Patient Aligned Care Teams model to deliver primary care at their facility. Some respondents discussed Patient Aligned Care

Team requirements as a barrier to both taking on new primary care physicians and increasing productivity among existing ones. Patient Aligned Care Teams “teamlet” requirements necessitate that each new primary care provider be matched with a registered nurse, an administrative clerk, and a nurse case manager, tripling the number of staff that facilities must take on for each new primary care provider position: “Our administrative staff is just decimated. . . . We have four P[atient] A[ligned] C[are] Teams, so those teams should be a provider, a [registered nurse], a [licensed vocational nurse], and an administrative person. So right now, we have one out of the four here of the administrative people.” Moreover, while teamlets are intended to include staff to shift many administrative and clinical tasks away from providers, in practice many providers are still doing below-license work: “In primary care . . . if you don’t have your nurse there to do these CPRS alerts, you’re doing them and you’ll just get buried in a lot of administrative, and even the nurse shouldn’t even be doing most of it, but it’s the way our system is. . . . It just makes you a lot less productive.” The challenges and clerical demands associated with new initiatives, such as PACT and health information technology, are likely key drivers of capacity constraints in VA primary care.

Survey data confirm the interview findings. Across both the Chief of Staff and the condition-specific modules, respondents report that the most significant barriers to productivity are related to administrative requirements. For example, 60 percent of chiefs of staff said that administrative requirements were a major impediment to productivity. Respondents across both the Chief of Staff and disease-specific modules also reported productivity was limited because many providers perform administrative activities that others could perform and because there are not enough support staff. Particular to some of the individual conditions, 42 percent of respondents for TBI reported that no-show rates for visits negatively impacted productivity “a lot.” Fifty percent of respondents for the PTSD module said that the scheduling system was inadequate, significantly impacting productivity, a concern that was also reflected in qualitative interviews.

Beyond logistical barriers to delivering care, a few respondents mentioned that the culture of VA may inhibit efficient delivery of patient care. On the provider side, one respondent described the tendency of providers to want control over their own schedules and patient load, which increases the administrative time they report. Clinical time may also be impacted by provider work preferences: “We have some providers that have been here for a long time. They’ve seen a set number of patients or had a way of working that was very flexible... so there’s kind of a cultural shift that has to take place in order to get everyone to try to get the same level of productivity from each, struggling with some providers who want 45 minutes for their patient per appointment.” On the support staff side, another respondent perceived the environment at VA as an impediment to a team-based environment, which in turn, impacts efficiency: “Often in the VA with a unionized workforce, with very specific prescribed job duties and position descriptions, it’s much more of a ‘no, that’s not my job’ or ‘no, you’re not my boss’ whether it’s said overtly or not.”

### 3.2.4.4 Subsection Summary

In sum, we heard in the interviews that recruitment, retention, and productivity at VA facilities all contribute to capacity constraints in various ways. Representatives from all facilities we

spoke to described challenges with workforce capacity to keep up with growing patient demand for VA services. Physician shortages may be due to national or local supply of physicians, desirability of the geographic area, or space constraints in facilities, among other factors. In addition, the shortage within VA is likely influenced by retention and recruitment factors including funding for providers, salary, and human resources processes. Productivity constraints stem from challenges with recruiting and effectively utilizing support staff, infrastructure issues, technological challenges, and cultural issues that may be endemic to VA.

### 3.2.5 Subsection Summary

As one of the largest providers of health services in the world, VA had nearly 300,000 employees in 2014. While VA's workforce grew 15.8 percent from 2008 to 2012, the growth rate slowed over that period. Overall, contract providers account for about 3.5 percent of total workforce.

In this subsection, we described current numbers (as of FY 2014) of key provider types currently working in the VA system by total numbers of provider clinical FTEs as well as the number of clinical FTEs per 1,000 patients at a facility. We also described the relative productivity of various provider types. For physicians and associate providers, we used work RVUs per clinical FTE as measures of productivity, whereas for primary care physicians we used panel sizes and for therapist we used encounters. We identified several key challenges associated with the VA staff planning and assessment processes. These include a lack of guidance about what methods should be used, a lack of external productivity benchmarks, inaccurate or incomplete data inputs, and the inability of the data system to adequately account for certain types of providers and patient visits.

We found significant variation across facilities and VISNs in terms of productivity. Likewise, we also found variation in wait times across facilities and specialties. The greatest variations in physician productivity were in neurosurgery and thoracic surgery, while the smallest variations were in internal medicine, neurology, mental health, and surgery. In general, we found less variation in physician specialist productivity by VISN than by facility. These estimates must be considered, however, in light of concerns about coding and data quality discussed throughout this subsection.

Analysis of VA data, literature reviews, and interviews suggests that VA workforce capabilities may not be sufficient to provide timely care to Veterans across a number of key specialties as well as primary care. These constraints are influenced by a number of key factors affecting the size and productivity of the VA workforce. Particularly, interviewees reported that relatively low salaries, a slow credentialing process, and infrastructure constraints likely lead to challenges with hiring and retaining providers. Survey respondents reported that the most significant barriers to productivity are related to administrative requirements. We also found that infrastructure issues, challenges with appointment scheduling, increased clerical tasks from new initiatives, a lack of support and clerical personnel, and cultural issues likely inhibit provider productivity at VA.

### 3.3 Physical Infrastructure

The VA workforce is supported by a vast physical infrastructure. VA owns and leases equipment and health care sites of varying types and capabilities. In addition, VA operates housing, transportation, and other support services that assist Veterans and connect them with health care sites. VA encompasses one of the most extensive systems of health care physical infrastructure in the country. Its facilities serve approximately 9 million enrollees living in every region, from the most urban to the most rural locations. With the exception of the Military Health System, no other integrated medical system seeks to deliver every type of medical care in every region of the country. In the private sector, Kaiser Permanente may come closest, with 9.6 million members, 38 hospitals, and 618 medical offices, but Kaiser has a relatively small geographic footprint compared with VA.

VA engages in extensive efforts to plan for the delivery of health care without overinvesting in medical technologies and other costly infrastructure (Phibbs, Cowgill, & Fan, 2013). Assessment K describes capital management, construction, leasing, maintenance, and other planning processes in greater detail. In this subsection, we provide a focused inventory of the physical infrastructure and resources available in VA-owned and VA-contracted facilities. We describe, in turn, the number, types, complexity, size, and medical service capabilities of VA medical facilities, and offer an inventory of support services that help connect Veterans with care. We also discuss the role of VA's physical infrastructure in ensuring that Veterans have access to care and identify barriers or challenges faced by VA in relation to its physical infrastructure.

A summary of the methods used in these analyses is shown in the box.

#### Overview of Methods and Data for Assessment of Physical Infrastructure

- To assess VA's physical infrastructure, we identified and geocoded the locations of all VA health care sites, Transportation Services, and Veteran Housing Services. We also examined the number and distribution of sites by their complexity level. We identified and defined clinical care services that are definitive for one or more of the seven illustrative clinical populations.
- To examine how VA facility locations, size, complexity, and service offerings may be related to delays in care, we interviewed 29 medical facility staff and Veteran advocates about their experiences in the system.
- These analyses were supplemented by a literature review to understand the proportion of Veterans within a certain distance or travel time from a facilities or care, and to identify barriers and facilitators to geographic access.
- Data sources used in these analyses included the Veterans Affairs Site Tracking System, American Community Survey, American Hospital Association 2014 Annual Survey of Hospitals, VA Planning Systems Support Group Enrollee file, VHA Daily Bed Report, FY 2015, VA Veterans Transportation Program, 2015, HUD VASH Utilization Report, HUD 2014 Raw Housing Inventory Count, VA Surveys (Complementary and Alternative Medicine, Cardiovascular Specialty Care Services, Emergency Departments, Pain Management, Physical Therapy, Prosthetics and Sensory Aids Service, Recovery Oriented Mental Health Care,

Surgical Services), VA Clinical Inventory Facility Profile Report, and VA Clinical Inventory Facility Services Report.

- For complete details of the methods used to assess physical infrastructure, please refer to Section 2 of this report and Appendix A-3.

### 3.3.1 VA Health Care Sites

VA organizes its health care sites in a kind of nested structure. At the highest level, all sites are associated with one of 21 VISNs, which manage all resources within their service areas.<sup>21</sup> At the next level, every health care site falls under an “administrative parent”—a single leadership group that oversees a collection of health care sites (VA, 2013f) and is headed by a director. VAMCs can provide both inpatient and outpatient services. There are also free-standing health care sites (meaning they are not co-located with a VAMC), as described in Table 3.3-1.

**Table 3.3-1. Types and Numbers of VA Health Care Sites**

Site Type	Definition	Total	Medical Facility Total
Hospital	Any VA-owned, -staffed, and -operated facility providing acute inpatient and/or rehabilitation services	144*	144*
VAMC	A VA point of service that provides at least two categories of care (inpatient, outpatient, residential, or institutional extended care)	166	163
Health care centers	A VA-owned, VA-leased, contract, or shared clinic operated at least five days per week that provides primary care, mental health care, and on-site specialty services, and performs ambulatory surgery and/or invasive procedures that may require moderate sedation or general anesthesia	14	14
Multi-specialty CBOC	A VA-owned, VA-leased, mobile, contract, or shared clinic that offers both primary and mental health care as well as two or more specialty services on-site	185	185
Primary care CBOC	A VA-owned, VA-leased, mobile, contract, or shared clinic that offers both medical (on-site) and mental	509	509

<sup>21</sup> The VISNs are numbered through 23, but several were merged, so there are no VISNs 13 and 14.

## Assessment B (Health Care Capabilities)

Site Type	Definition	Total	Medical Facility Total
	health care (either on-site or by telehealth), and may offer support services such as pharmacy, laboratory, and X-ray		
Other outpatient services site	Sites that do not meet the criteria to be classified as a CBOC or health care center	74	0
Extended care	Encounters between Veterans and providers in either VA institutional care or VA non-institutional care	2	0
Domiciliary residential care treatment program	Encounters between Veterans and providers within the VA health care system that require an overnight stay in residential bed sections	4	0
Total		955	871

Source: Definitions, VA table comparing old to new Veterans Affairs Site Tracking System definitions. Number of facilities, Veterans Affairs Site Tracking System data, second quarter 2015.

Notes: Facility counts changed over the study period as a result of site reclassifications. The numbers in this report come from an April 2015 extract from the Veterans Affairs Site Tracking System that followed a major VHA site reclassification in March of 2015. We received the extract on April 15, 2015. Other assessments may have used Veterans Affairs Site Tracking System extracts from other dates, which were based on earlier definitions and therefore have different facility counts, or based on a proposed classification system from 2014 differing in some ways from the actual new classifications.

\*All hospitals are also considered VAMCs.

A new VA site classification system was adopted in March 2015 (VA, 2013f, VHA, Office of the Assistant Deputy Under Secretary for Health for Policy and Planning, 2015).<sup>22</sup> Most, but not all, VA sites that offer health care services are considered “medical facilities.” The Veterans Affairs Site Tracking System facility database identified 955 sites as of the second quarter of FY 2015. Of these, 871 are considered medical facilities, and 84 are nonmedical facilities. The nonmedical facilities include 74 “other outpatient services sites,” which provide outpatient services but do not meet classification criteria as a CBOC or health care center; three VAMCs;<sup>23</sup>

<sup>22</sup> The handbook defining the new classifications was published in December 2013, but they were not formally implemented until March 2015.

<sup>23</sup> These three VAMCs offer at least two categories of care, but not inpatient care, and do not meet VA criteria as outpatient medical facilities. According to information provided by VA’s Planning System Support Group, only VAMCs that have an outpatient classification of health care center, multispecialty CBOC, or primary care CBOC



two extended care sites; and four domiciliary residential care treatment program sites. Note that every hospital is also part of a VAMC; there are no “free-standing” hospitals.

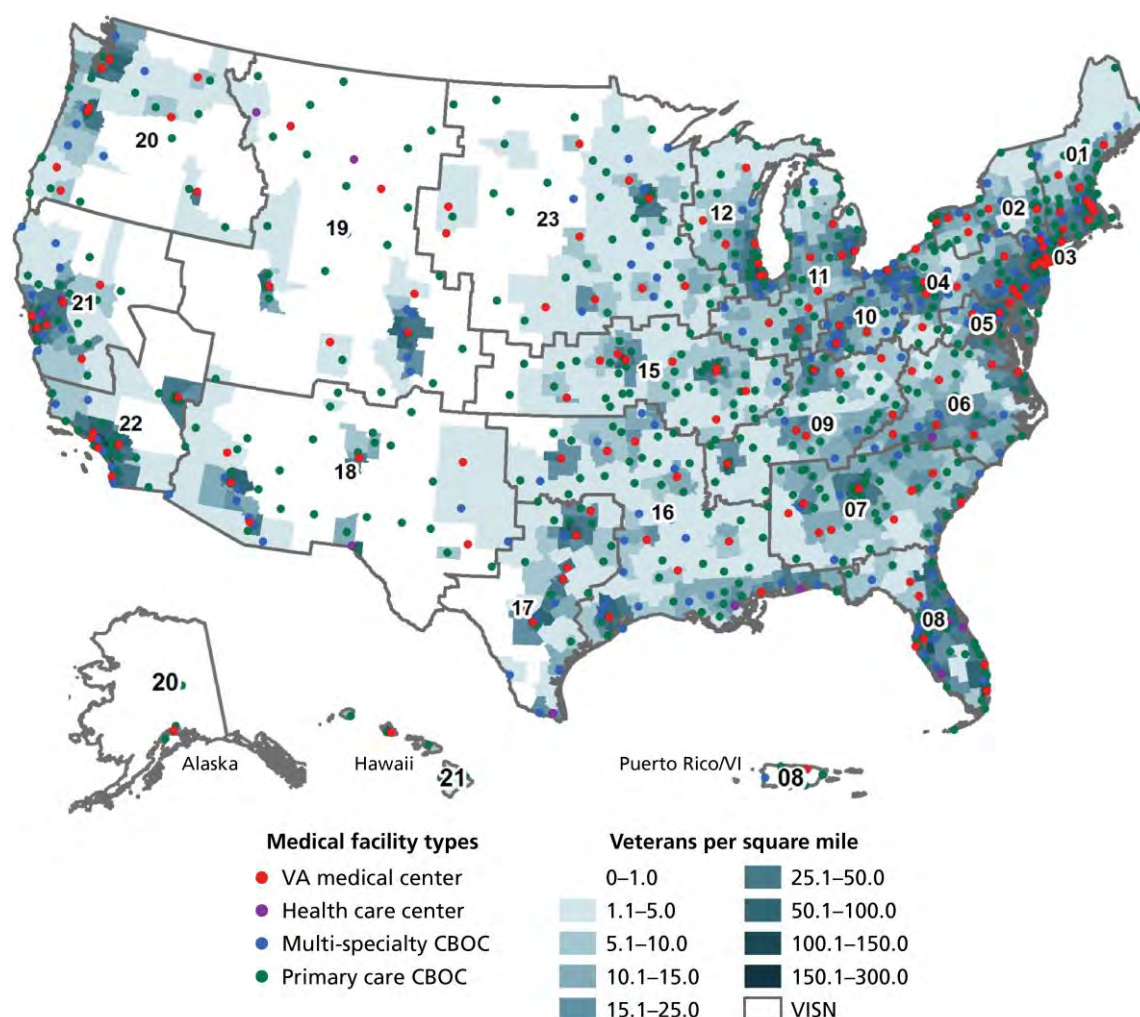
Figure 3.3-1 shows the locations of the four medical facility types, Veteran population<sup>24</sup> densities, and boundaries of the 21 VISNs. VA medical facilities are concentrated in the Northeast, Mid-Atlantic, and West Coast regions, where large numbers of Veterans live. VA medical facilities are less concentrated in the Southwest, plains states, mountain states, and Northwest, where fewer Veterans live. Section 4 discusses geographic access to VA care in more detail.

---

are considered medical facilities. This applies to four VAMCs; however, one of these also contains a hospital, so it retains its designation as a medical facility.

<sup>24</sup> This refers to the entire Veteran population, not just enrollees. Although non-enrollees cannot use VA medical facilities, they could potentially enroll in the future.

Figure 3.3-1. Locations of VA Medical Facilities and the Veteran Population Density



Sources: Authors' analysis of facility and location information from Veterans Affairs Site Tracking System data, second quarter 2015. Veteran population density expressed as number of Veterans per square mile based on Assessment A projections, which utilize American Community Survey data.

### 3.3.2 Facility Size and Usage

VA facilities vary widely in size and usage, much like those in the private sector. Tables 3.3-2a and 3.3-2b presents two measures of facility size, expressed as rates per 10,000 enrollees by VISN. The first measure is the number of operating hospital beds for the time period selected; the count excludes beds that are temporarily closed for any reason. The second measure, average daily census, is the average number of inpatients per day of service.<sup>25</sup> This is calculated

<sup>25</sup> VA does not report outpatient daily census.

by dividing cumulative bed days of care for the fiscal year to date by the number of calendar days in service (VSSC, 2011). The third measure, bed occupancy, is the average inpatient daily census divided by the total number of hospital beds.

**Table 3.3-2a. VA Operating Beds per 10,000 Enrollees, by Bed Type**

	Hospital	Nursing Home	Domiciliary	CWT/ TR
National average	18.3	14.9	8.5	0.7
VISN Min, max	11.5, 43.4	7.0, 33.7	4.1, 17.6	0.0, 2.7
VISN interquartile range	14.8, 20.2	11.4, 19.8	5.9, 13.4	0.4, 0.9

**Table 3.3-2b. VA Average Daily Census per 10,000 Enrollees, by Bed Type, and Hospital Bed Occupancy**

	Hospital	Nursing Home	Domiciliary	CWT/ TR	Bed Occupancy
National average	11.0	10.2	6.2	0.5	60%
VISN Min, max	7.3, 15.8	5.4, 20.1	2.9, 14.6	0.0, 1.9	36%, 70%
VISN interquartile range	9.0, 12.8	6.6, 14.8	4.1, 10.3	0.2, 0.6	59%, 64%

Sources: Operating Beds and Average Daily Census from VHA Daily Bed Report, FY 2015.

Enrollee population from VA Planning Systems Support Group Enrollee file (Phibbs, Cowgill, & Fan, 2013).

Notes: CWT/TR is Compensated Work Therapy Transitional Residential. The interquartile range is estimated by ranking VISN-level estimates from lowest to highest and reporting estimates at the 25th and 75th percentiles.

There are various types of hospital beds within VAMCs (Tables 3.3-2a and 3.3-2b). Hospital beds may be designated for specific uses: blind rehabilitation, internal medicine, neurology, psychiatry, rehabilitation medicine, spinal cord, and surgery. Nursing home beds are for patients requiring long-term care. Domiciliary beds are for Veterans in various residential care programs (see VA, 2010).<sup>26</sup> CWT/TR beds are for Veterans in that rehabilitation program.

On average, the VA system has 18.3 hospital beds per 10,000 enrollees and an inpatient daily census of 11 patients per 10,000 enrollees. This works out to 60-percent average occupancy across VA facilities. Among the 21 VISNs, occupancy ranges from a high of 70 percent to a low of 36 percent. VISNs cluster tightly in the middle 50 percent of the distribution; there are long

<sup>26</sup> This includes the Domiciliary Care for Homeless Veterans program, which is also discussed in Section 3.3.1.4, Support Services.

“tails” below the 25th and above the 75th percentiles. This suggests that efforts to reduce variation in occupancy could be focused on outliers.

Hospital bed supply varies widely across VISNs, with a maximum 43.4 hospital beds per 10,000 enrollees (the VISN with the highest bed supply also has the lowest occupancy rate). The other bed types have higher usage (data not shown) than hospital beds: Nursing home beds are, on average, 69 percent occupied, domiciliary beds are 73 percent occupied, and CWT/TR program beds are 70 percent occupied.

VA also operates a number of mobile medical units, which are vans or other large vehicles equipped to deliver certain types of care in rural areas or to be deployed in case of large-scale emergencies. According to a 2014 audit, VA operated at least 47 mobile medical units, but the audit lacked the exact number and the amount of patient use (VA, Office of Inspector General, 2014c).

### **3.3.3 Facility Complexity**

A large share of VA medical facilities is classified as “high complexity” (Table 3.3-3). The complexity level is based on the patient populations, clinical services, educational and research missions, and administrative structure of the administrative parent and its satellite facilities (VHA Office of Productivity, Efficiency, and Staffing, 2015).<sup>27</sup> Medical facilities are classified in three levels, with Levels 1a–1c representing the most complex facilities; Level 2, moderately complex facilities; and Level 3, the least complex facilities. Table 3.3-3 shows the complexity level of the administrative parents; all medical facilities are assigned the same complexity level as the parent.

**Table 3.3-3. Count of VA Administrative Parents by Level of Complexity**

<b>Complexity</b>	<b>Administrative Parents— Number</b>	<b>Administrative Parents—%</b>
1a - High	32	23
1b - High	15	11
1c - High	27	19
2 - Medium	32	23
3 - Low	31	22
Excluded	3	2
<b>Total</b>	<b>140</b>	<b>100</b>

---

<sup>27</sup> Seven variables are considered in estimating facility complexity: volume and patient case mix, clinical services provided, patient risk calculated from VA patient diagnosis, total resident slots, an index of multiple residency programs at a single facility, total amount of research dollars, and the number of specialized clinical services.

Source: Veterans Affairs Site Tracking System data, second quarter 2015.

Notes: The numbers in this report come from an April 2015 extract from Veterans Affairs Site Tracking System that followed a major VA site reclassification in March of 2015. One administrative parent, in the Philippines, is not included in the table because its complexity level was not available.

### 3.3.4 Service Provision

In addition to sites where health care is delivered, VA's physical infrastructure includes the medical technology<sup>28</sup> used at VA facilities for specific health services. Examples include imaging equipment, specialized surgical suites, emergency departments, consultation rooms for outpatient services, and beds for inpatient services. For this report, we focus on 27 services used in the care of seven illustrative clinical populations at VA and non-VA medical facilities. In Table 3.3-4 we present the seven populations, the 27 services, and the number of VA medical facilities that provide the services.

**Table 3.3-4. Number of VA Sites with Selected Clinical Population-Specific Services**

Services (by Clinical Population)	Number of Facilities (% of 933* Total Health Care Sites)
<b>Acute Coronary Syndromes</b>	
Non-invasive cardiology services	170 (18)
Emergency department	114 (12)
Coronary care unit	112 (12)
Interventional cardiology	79 (8)
Telemetry (if Critical Care Unit [CCU]/Intensive Care Unit [ICU] is not available)	77 (8)
Diagnostic cardiac catheterization	76 (8)
Cardiac surgery	75 (8)
<b>Colon Cancer</b>	
Primary care clinic	895 (96)
Computerized tomography scan	175 (19)
Oncology services	168 (18)
Colonoscopy	167 (18)

<sup>28</sup> Medical technology can be considered distinct from medical IT, an important capital resource that is described in Subsection 3.5 of this report.

## Assessment B (Health Care Capabilities)

<b>Services (by Clinical Population)</b>	<b>Number of Facilities (% of 933* Total Health Care Sites)</b>
Surgical services	130 (14)
<b>TBI</b>	
Specialty care	207 (22)
Polytrauma support clinic team	88 (9)
Polytrauma network site	23 (2)
Polytrauma Rehabilitation Center (Program)	5 (1)
<b>Type II Diabetes Mellitus</b>	
Primary care clinic	895 (96)
Diabetes specialty or endocrinology clinic	379 (41)
Podiatry clinic	323 (35)
Ophthalmology clinic	169 (18)
<b>PTSD</b>	
Mental health services	848 (91)
Psychotherapy	672 (72)
Domiciliary Residential Rehabilitative Treatment Program	45 (5)
<b>SUD</b>	
Mental health services	848 (91)
Outpatient specialty care	549 (59)
Methadone	347 (37)
Inpatient detoxification	146 (16)
Residential treatment	64 (7)
<b>Conditions Requiring Gynecological Surgery</b>	
Gynecological surgery services	98 (11)

Source: RAND estimates derived from the VA Planning Systems Support Group (PSSG) Enrollee file, the VA Clinical Inventory Facility Profile Report, and the VA Clinical Inventory Facility Services Report datasets extracted on February 4, 2015. Discrepancies between our counts for individual services and those from other data extracts have two sources: a) there are minor changes over time in reported inventory counts b) our counts of some services represent combinations of variables from our sources. Appendix table F-10 documents the specific

variables we used to construct our counts for each service.

Notes: \*The total number of VA facilities that could potentially deliver health care services is 955. However, inventories of condition-specific services were missing for 22 facilities.

### 3.3.5 Support Services

Other VA resources and capabilities help to connect a Veteran to medical care. These include Veterans Centers, transportation services, and housing services.

**Veterans Centers.** Veterans Centers provide counseling, outreach, and referral services to Veterans and their family members. The 300 centers in 2010 served 191,000 people (VHA, 2015).

**Transportation Services.** Transportation Services support Veterans who are unable to drive to medical facilities. VA runs some programs directly, while independent organizations run others. VA had approximately 80 transportation programs that it managed or purchased nationwide as of April 2015, and we obtained data for 75 of them from transportation services managers. The 75 programs collectively serve 310 CBOCs and 154 other locations with 834 vehicles. Data on the number of Veterans served and the number of rides provided was not available. While a number of states, counties, VSOs, and possibly other organizations also provide transportation services to Veterans, we were unable to identify comparable data on their services. All VISNs except VISN 4 have some type of transportation available, but some serve more locations than others (Table 3.3-5).

**Table 3.3-5. VA Transportation Services by VISN**

VISN	Number of Vehicles	Number of CBOCs Served	Number of Native American Reservations Served	Number of Vet Centers Served	Number of State Veteran Homes* Served
01 Boston	41	29	4	10	11
02 Albany	58	14	1	0	0
03 Bronx	61	9	1	1	1
04 Pittsburgh**	NR	NR	NR	NR	NR
05 Baltimore	18	8	0	1	0
06 Durham	16	6	0	0	1
07 Atlanta	36	23	1	4	6
08 Bay Pines	113	26	1	5	3
09 Nashville	32	16	4	7	8
10 Cincinnati	27	12	0	1	0
11 Ann Arbor	67	11	1	1	3

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

VISN	Number of Vehicles	Number of CBOCs Served	Number of Native American Reservations Served	Number of Vet Centers Served	Number of State Veteran Homes* Served
12 Chicago	69	17	3	5	4
15 Kansas City	47	16	0	0	1
16 Jackson	29	14	2	2	2
17 Dallas	30	8	0	0	1
18 Phoenix	59	21	5	4	3
19 Denver	43	22	10	4	6
20 Portland	34	14	5	5	1
21 San Francisco	4	1	0	0	0
22 Long Beach	22	19	0	2	1
23 Minneapolis	28	24	5	4	3
<b>Total</b>	<b>834</b>	<b>310</b>	<b>43</b>	<b>56</b>	<b>55</b>

Source: VA Veterans Transportation Program, 2015.

Notes: \*State Veteran Homes provide nursing home or adult day care services to Veterans. They are formally recognized and surveyed by VA but they are operated by individual states.

\*\*Data for VISN 4 were not reported (NR).

**Housing Programs.** Housing programs serve Veterans who might otherwise be homeless. A January 2014 estimate put the number of homeless Veterans at approximately 50,000, down from 150,000 five years earlier (National Alliance to End Homelessness, 2015). Programs include direct VA housing programs, vouchers for community programs, and services that assist homeless Veterans but do not provide beds. In FY 2014, VA provided specialized homeless services to almost 265,000 Veterans and made available approximately 80,000 beds, both directly and through community partners. These beds were provided through four programs (VA, 2014i):

- The Housing and Urban Development–Veterans Affairs Supportive Housing (HUD-VASH) Program has provided more than 58,000 rental vouchers to Veterans.
- The Homeless Providers Grant and Per Diem Program, which makes grants to community-based agencies to programs transitional housing, provides about 15,000 beds.
- The Domiciliary Care for Homeless Veterans program provides time-limited residential treatment to homeless Veterans with mental health and substance use disorders. Approximately 2,500 beds were available at 48 sites.
- Health Care for Homeless Veterans provides outreach and case management to homeless Veterans, and operates approximately 4,000 beds.



## Assessment B (Health Care Capabilities)

VA directly provides services under the latter two programs. While the areas served by most VAMCs have some housing services available, Table 3.3-6 shows a high ratio of vouchers and Homeless Providers Grant and Per Diem Program beds to the enrollee population in VISN 22. VISN 21 provides a high number of Health Care for Homeless Veterans beds.

**Table 3.3-6. Housing Services per 10,000 Enrollees, by VISN, 2015**

<b>VISN</b>	<b>HUD-VASH Vouchers</b>	<b>Homeless Providers Grant and Per Diem Program Beds</b>	<b>Domiciliary Care for Homeless Veterans Beds</b>	<b>Health Care for Homeless Veterans Beds</b>	<b>Supportive Services for Veteran Families Rapid Re-Housing for Veterans (projected)</b>	<b>Non-VA Permanent Supportive Housing for Veterans (projected)</b>
01 Boston	14.5	27.6	2.6	3.9	143.3	15.4
02 Albany	9.9	9.0	1.8	4.7	145.4	9.4
03 Bronx	18.3	25.0	6.4	5.2	205.0	22.1
04 Pittsburgh	10.7	17.5	4.9	4.1	95.4	6.4
05 Baltimore	18.1	17.9	4.0	6.0	117.2	13.8
06 Durham	11.1	8.6	0.6	2.5	78.4	2.8
07 Atlanta	15.2	8.3	3.2	3.0	80.3	3.4
08 Bay Pines	15.7	13.7	1.6	3.7	129.9	4.2
09 Nashville	11.6	16.3	0.8	1.6	89.3	3.7
10 Cincinnati	12.9	14.1	5.1	4.5	96.9	9.3
11 Ann Arbor	15.0	21.7	2.4	6.0	115.1	7.6
12 Chicago	13.7	17.5	2.8	5.2	93.3	9.2
15 Kansas City	12.5	8.7	6.5	5.2	55.1	4.6
16 Jackson	14.0	11.1	1.3	4.1	91.5	3.0
17 Dallas	13.8	7.1	1.7	4.6	110.3	3.1
18 Phoenix	19.1	12.4	3.5	5.0	95.4	5.7
19 Denver	21.2	21.1	2.9	3.4	97.3	4.0
20 Portland	21.0	17.1	3.4	2.0	109.4	8.6
21 San Francisco	35.7	24.7	1.8	12.3	190.6	13.2
22 Long Beach	52.6	44.9	3.2	5.5	167.5	10.4
23 Minneapolis	6.7	9.7	1.6	1.7	47.1	6.9

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

VISN	HUD-VASH Vouchers	Homeless Providers Grant and Per Diem Program Beds	Domiciliary Care for Homeless Veterans Beds	Health Care for Homeless Veterans Beds	Supportive Services for Veteran Families Rapid Re-Housing for Veterans (projected)	Non-VA Permanent Supportive Housing for Veterans (projected)
<b>Total</b>	17.4	16.5	2.7	4.3	109.7	7.1

Sources: HUD-VASH Vouchers, HUD-VASH Utilization Report, December 2014; these figures reflect vouchers available as of December 2014, rather than the number used in 2014. Bed counts, FY 2015 Bed Report. Supportive Services for Veteran Families and Permanent Supportive housing projections developed by the VA Center for Applied Systems Engineering, based on HUD's 2014 Raw Housing Inventory Count.

Notes: HUD-VASH Vouchers: Housing and Urban Development–Veterans Affairs Supportive Housing Program vouchers for rental assistance. SSVF: Supportive Services for Veteran Families. Domiciliary Care for Homeless Veterans is a subset of the broader domiciliary programs described in Subsection 3.3.2, so these numbers represent a portion of the numbers in Table 3.3-2.

VA's Supportive Services for Veteran Families program funds non-VA organizations to provide services that promote housing stability among low-income Veteran families. In FY 2014, the program served almost 124,000 individuals—about 77,000 of them Veterans.

Finally, some Veterans find permanent supportive housing (in facilities that provide case management to persons with disabilities or other conditions that make it difficult to live independently) with non-VA organizations, some of which reserve beds for Veterans. VA estimates the number of beds reserved for Veterans at 6,400 (VA Center for Applied Systems Engineering based on HUD's Raw Housing Inventory Count). However, VA does not directly fund these services.

### 3.3.6 VA Physical Infrastructure and Access to Care

We interviewed 29 individuals in leadership or clinical care positions at VISNs, VAMCs, or CBOCs about their experiences with VA physical infrastructure. When other respondents, including Veteran advocates, spontaneously commented on infrastructure, we also included their comments. Respondents were generally satisfied with the availability and quality of VA medical equipment and supplies, though this varied across facilities and types of equipment. Few interviewees raised concerns about oversupply of infrastructure, but evidence suggests that decommissioned facilities are only slowly repurposed, and facility and Central Office leaders pointed out that maintenance of these facilities is costly.

Physical space was most commonly cited as being in short supply, and many interviewees said that this perceived shortage limits provider productivity and increases the need for non-VA

inpatient care, in particular. VAMC leadership and clinical staff discussed the need to continually update physical space to keep pace with the evolving needs of medical equipment (for example, physical space, network connectivity) and changing standards for best practices in patient care (for example, single-occupancy rooms to improve patient experience and infection control). This was especially true for respondents working in older facilities. Some described how, over time, incremental expansions and renovations have resulted in work environments that negatively affect productivity and/or patient experience because the resulting facilities feel disconnected, “cobbled together,” or overcrowded.

Interviewees identified several barriers to increasing construction, leasing space from non-VA facilities, or reconfiguring or repurposing existing space. For example, the approval process for new construction can be lengthy and challenging (Assessment K describes these challenges in detail). Some respondents indicated that, when new construction is completed, the facility may no longer meet existing needs; however, construction was generally seen as positively contributing to patient care and provider productivity. Similarly, at times leasing new space was also described as such a time-consuming process that even “emergency leases” are not obtained quickly enough to respond to ever-changing needs.

### 3.3.7 Subsection Summary

VA operates one of the most extensive systems of health care infrastructure in the country. Of 955 sites, 871 are medical facilities; the remaining sites, considered nonmedical facilities, generally provide outpatient services or residential treatment. VA medical facilities are concentrated in regions with the most Veterans: the Northeast, Mid-Atlantic, and West Coast. A large share of VA medical facilities are classified as “high complexity,” which is based on the patient populations, clinical services, educational and research missions, and administrative structure of the administrative parent and its satellite facilities.

On average, the VA system has 18.3 hospital beds per 10,000 enrollees and an inpatient daily census of 11 patients per 10,000 enrollees, for an occupancy rate of 60 percent. Hospital bed supply varies widely across VISNs, with a maximum 43.4 hospital beds per 10,000 enrollees (the VISN with the highest bed supply also has the lowest occupancy rate).

VA’s physical infrastructure also includes medical technology such as imaging equipment, specialized surgical suites, and emergency departments, as well as resources including Veterans Centers, housing programs, and transportation services. Interviewees in leadership or clinical care positions are generally satisfied with VA medical equipment and supplies, but they note that physical space is in short supply and even new facilities can quickly grow out of date. Interviewees identified several barriers to increasing construction, leasing space from non-VA facilities, or reconfiguring or repurposing existing space, including a lengthy approval process and changing needs.

In the next subsection, we consider additional resources and capabilities available to VA through relationships with non-VA partners.

### **3.4 Interorganizational Relationships**

Relationships with non-VA partners represent additional resources and capabilities that VA can utilize to provide timely and accessible care to Veterans. Veterans may use purchased care when VA cannot provide the care, VA care is not geographically accessible, VA cannot provide the care in a timely manner, or when care can be provided more cost-effectively by a partner. Care is provided to VA enrollees by non-VA entities through several programs and various types of payment or contractual arrangements that VA has negotiated with its partners.

In this subsection, we describe the complex web of arrangements that VA has in place to provide care to Veterans, including the different types of arrangements for care provision, the volume of patients seen under these arrangements, and expenditures. We begin with an overall summary of the purchased care program (Subsection 3.4.1) and then discuss two main components of purchased care: VA programs for community care (Subsection 3.4.2) and VA partnerships to deliver care (Subsection 3.4.3). In Subsection 3.4.4, we briefly describe the process of selecting a purchased care program, a topic discussed in detail in Assessment C. We also describe challenges in utilizing care delivered by non-VA entities (Subsection 3.4.5) and provide a summary (Subsection 3.4.6).

A summary of the methods used in these analyses is shown in the box.

#### **Overview of Methods and Data for Assessment of Interorganizational Relationships**

- We used several measures to describe the extent of care provided through relations with non-VA entities. Measures of utilization included purchased care outpatient visits, mental health outpatient visits, and patients treated in non-VA inpatient settings compared with VA facility utilization. We also measured total VA spending on various categories of purchased care as well as care purchased from VA partners such as DoD and the Indian Health Service.
- We performed a targeted literature search to obtain information on VA purchased care. To obtain additional context and detail regarding the various types of VA purchased care and the challenges associated with accessing, utilizing, coordinating, and reimbursing care, the team reviewed qualitative information gathered from interviews conducted by Assessments B, C, and I, and responses to questions contained in the 2015 Survey of VA Resources and Capabilities regarding the use of non-VA medical care.
- Data sources used in these analyses included the VA/DoD Medical Sharing Office VA Fee Basis Claims System data extract from Assessment I, VA Central Fee data extract from Assessment C, and VA Budget Requests 2012-2015.
- For complete details of the methods used to assess interorganizational relationships, please refer to Section 2 of this report.

#### **3.4.1 Overview of VA Purchased Care**

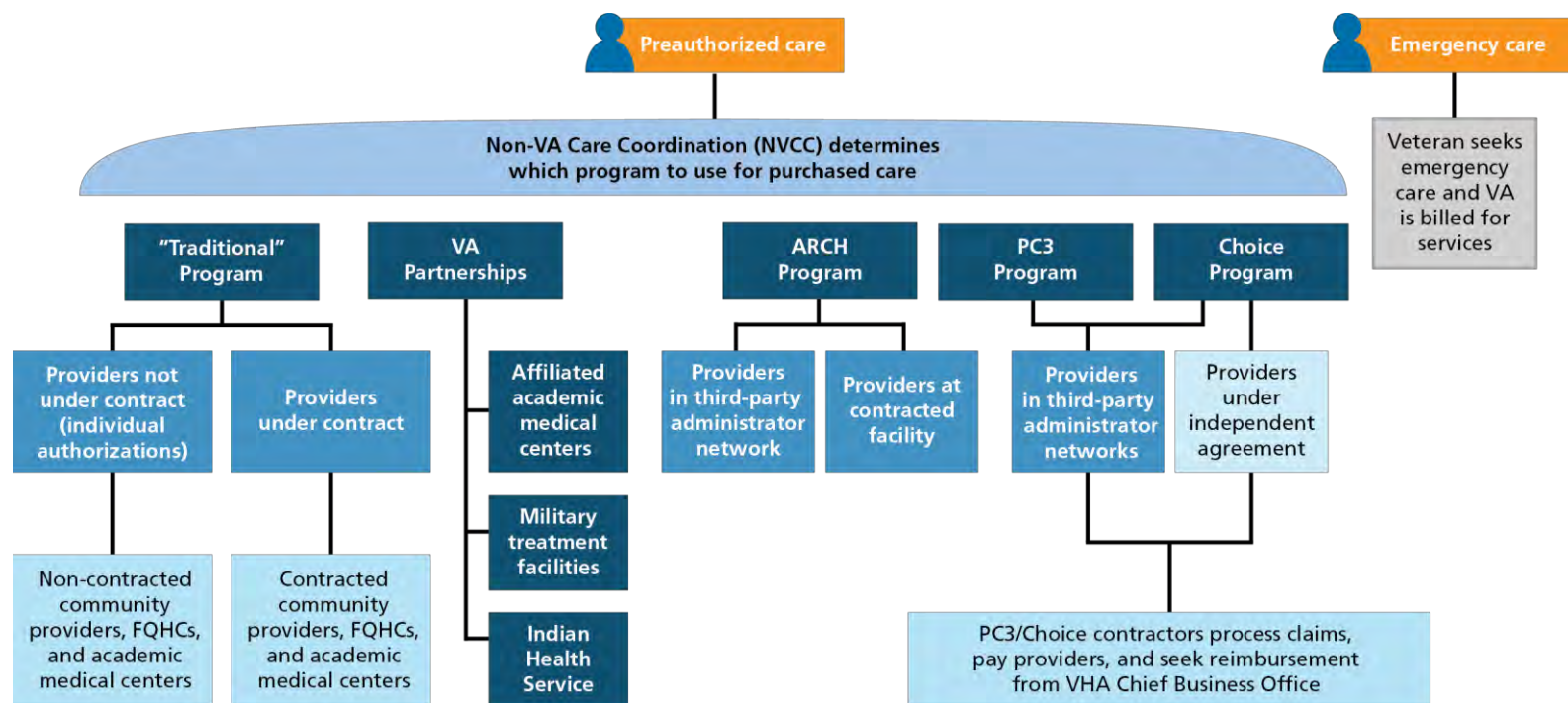
VA has multiple channels through which it purchases care for enrolled Veterans from non-VA providers. Purchased care may be either *emergency* or *preauthorized*; an authorization for

treatment in the community is required for any purchased care other than an emergency. VA reimburses the costs of emergency transportation and medical care at non-VA facilities for service-connected medical conditions and for Veterans who have no other source of payment for the care.<sup>29</sup> Before the passage of the Veterans Choice Act, VA *had the option* to offer care in the community if VA services were geographically inaccessible or if VA facilities were not available to meet a Veteran's needs. Preauthorized programs include the "traditional" program, care obtained through partnership agreements, the ARCH pilot, the PC3 program, and the Veterans Choice Program (Figure 3.4-1). Assessment C examines these mechanisms in detail along with the underlying authorities through which VA purchases care. In this subsection, we quantify, to the extent possible, the contribution of these programs and partnerships to VA's resources and capabilities. We briefly discuss each program in Subsection 3.4.2.

---

<sup>29</sup> The Veterans Millennium Health Care and Benefits Act allows for payment of emergency care not related to service-connected conditions under certain circumstances.

Figure 3.4-1. VA Purchased Care Programs and Partnerships



Source: Authors' analysis of VA documents.

The Non-VA Medical Care program,<sup>30</sup> formerly known as “fee care” or “fee-basis care,” refers to all care for enrolled Veterans provided in non-VA facilities and paid for by VA (we refer to this as “purchased care”). It has evolved from a very small program initiated in 1945<sup>31</sup> into a substantial source of care for enrolled Veterans. Spending for purchased care captured by the Fee Basis Claims System increased from \$3 billion in FY 2008 to \$5.5 billion in FY 2014.<sup>32</sup> Additional spending not captured by the Fee Basis Claims System, such as payments to state nursing homes and lump sum payments under some contracts, brings the total of 2014 purchased care payments to \$7 billion,<sup>33</sup> which represents 15 percent of the VA medical services budget (Office of Management and Budget, 2015). The top categories of medical care purchased through the program are dialysis (national contract), skilled and unskilled home health services, radiation therapy, diagnostic testing, physical therapy, inpatient hospitalization, and emergency care (Office of Management and Budget, 2015). This mix could change moving forward as utilization of purchased care under the Veterans Choice Program increases.

Across all programs, outpatient medical care represents the largest share of VA purchased medical care expenditures, accounting for about 36 percent of total purchased medical care spending (\$20.3 billion) for FY 2008–2012 (Table 3.4-1). From FY 2011 to FY 2014, the number of non-VA outpatient visits increased from 12.2 million to 14.2 million, though they remained at about 15 percent of total VA outpatient visits (Figure 3.4-2).

**Table 3.4-1. VA Spending by VA Purchased Care Category, FY 2008–FY 2012**

Type of Care	Percentage of All Purchased Medical Care Expenditures
Preauthorized outpatient—Medical	36.3
Preauthorized inpatient	22.7
Home health	13.3
Community nursing home	12.3
Emergency care for Veterans for non-service-connected conditions	8.8
Emergency care for Veterans with service-connected conditions	4.5

---

<sup>30</sup> This new name was established in 2013 to promote clarity since the terms “fee care” and “fee-basis care” were used inconsistently.

<sup>31</sup> The Chief Medical Officer of VA recognized that many hospital admissions of World War II Veterans could be avoided by treating them before they needed hospitalization and instituted a program for “hometown” medical and dental care at government expense for Veterans with service-connected ailments.

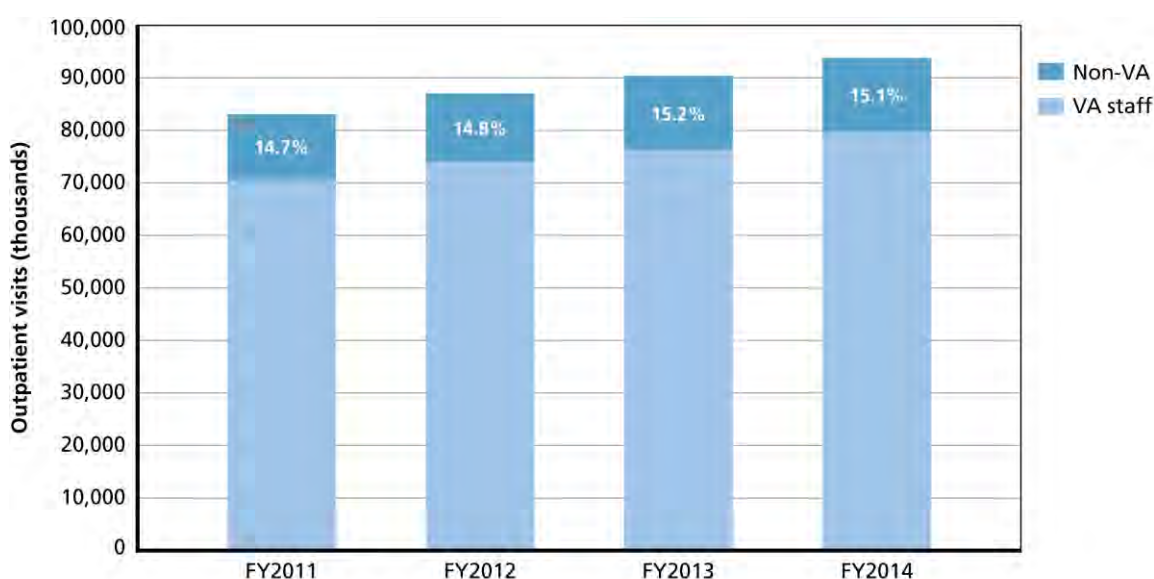
<sup>32</sup> This figure is based on a data extract provided by VA to Assessment I.

<sup>33</sup> We were unable to fully reconcile the difference between the \$5.5 billion figure in the data extract from VA and the \$7.0 billion figure included in the OMB document.

Type of Care	Percentage of All Purchased Medical Care Expenditures
Preauthorized outpatient—Dental	1.8
Compensation and pension exams	0.3
Total	100.0

Source: Adapted from Table 2 (“VA Spending and Utilization by Fee Basis Care Category, FY 2008 Through 2012”) in GAO, 2013c.

**Figure 3.4-2. Number of VA and Purchased Care Program Outpatient Visits, 2011–2014**



Source: Authors’ analysis of VA Congressional Budget Submissions 2012–2015.

Note: Includes mental health outpatient visits.

Mental health outpatient care is one of the few categories of care for which utilization data are readily available. Mental health care is provided mostly at VA facilities; in 2014, only 2.3 percent of these visits involved non-VA providers (Table 3.4-2). We were unable to identify recent data on the volume of other categories of outpatient purchased care, such as primary care. Inpatient (non-ambulatory) care accounts for the second highest level of purchased care spending, and in 2014, 22 percent of VA enrollees who received inpatient care were treated at non-VA facilities (Table 3.4-3).



**Table 3.4-2. Number of VA-Provided and VA-Purchased Mental Health Outpatient Visits, FY 2014**

	VA Care	Purchased Care	% Purchased Care
Mental Health Outpatient Visits	11,874,040	270,308	2.3

Source: Office of Management and Budget, 2015.

**Table 3.4-3. Number of Patients Treated in VA and Non-VA Inpatient Settings, FY 2014**

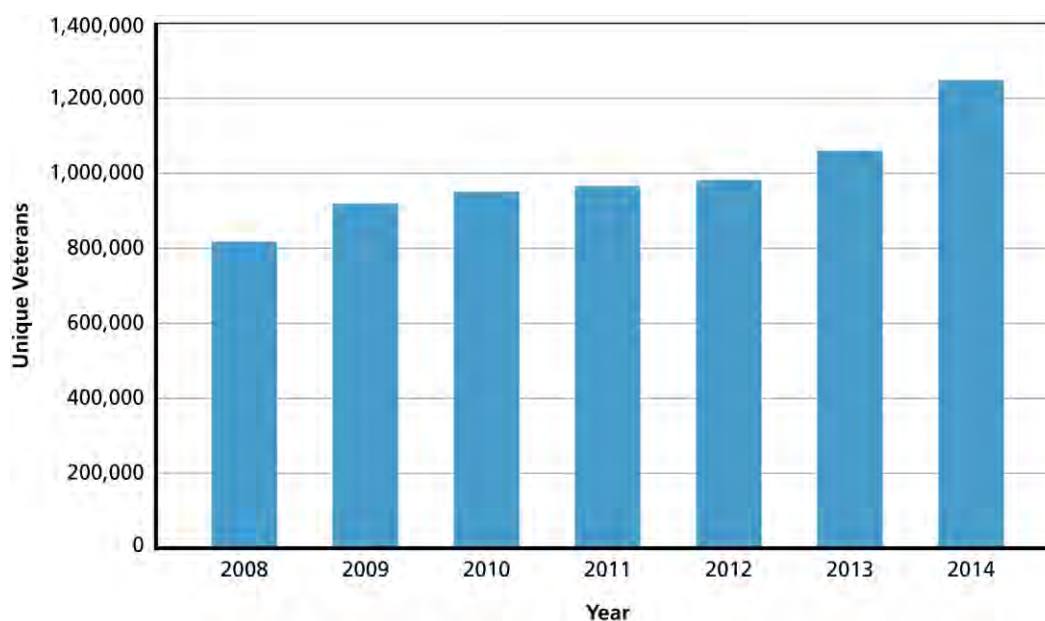
	VA Facilities	Non-VA Facilities	% Non-VA
Patients Treated in Inpatient (nonpsychiatric) Facilities	483,800	136,760	22.0

Source: Office of Management and Budget, 2015.

From 2008 to 2014, the number of unique Veterans utilizing purchased care increased by about 52 percent (Figure 3.4-3), and in 2014, 20 percent of all VA medical care users utilized some purchased care. Some demographic groups of VA enrollees rely more heavily on purchased care than others. As an example, 33 percent of women Veteran patients received at least some outpatient care through the Non-VA Medical Care Program in 2010 compared with 16 percent of men, and highly rural<sup>34</sup> women VA patients were more likely than highly rural men to use non-VA outpatient services (54 percent of highly rural women compared with 29 percent of highly rural men) (Frayne & Mattocks, 2012). VA facilities may lack the necessary volume of women patients to support the required care (for example, mammography) or have not historically provided particular gender-specific types of care (for example, obstetrical care) (Frayne & Mattocks, 2012).

<sup>34</sup> VHA defines “highly rural” as patients with addresses located in a county with fewer than seven residents per square mile, on average.

**Figure 3.4-3. Number of Unique Veterans Who Received Purchased Care, 2008–2014**



Source: Data extract from VA Central Fee Payment Files provided to Assessment C.

There is significant variation in purchased care spending across VAMCs. In 2014, the mean amount spent among VA stations that had purchased care claims was \$38.4 million; the highest amount was \$151 million. VISNs 8 and 20 each had multiple VAMCs within the top 10 for spending on purchased care in the period 2012–2014.<sup>35</sup>

### 3.4.2 VA Programs for Purchased Care

VA has multiple programs and partnerships through which it may arrange care for Veterans with non-VA providers. Some VA partners, such as Federally Qualified Health Centers (FQHCs) and academic medical centers, may participate in multiple programs. We briefly describe each of these options below.

#### 3.4.2.1 Traditional Program

In its traditional program, VA provides either individual authorizations for care with a non-VA provider (or a fee card for a small group of rural Veterans) or it contracts with local providers, academic medical centers, or FQHCs for particular services as needed. Prior to 2011, VA paid providers on an internally developed fee schedule or based on Medicare rates, which resulted in variability across VAMCs and VISNs. In 2011, VA began using applicable Medicare rates consistently, which likely contributed to a slight decline in total spending for purchased care in FY 2012 (GAO, 2013c). Individual authorizations and local contracts for purchased care have

<sup>35</sup> These numbers are derived from authors' analysis of the data extract VA provided to Assessment I.

been supplemented and, in some circumstances, replaced by other vehicles as VA attempts to standardize its purchasing process, performance metrics (for example, for access and medical records sharing), and reimbursement rates. VA has determined that any future local contracts with non-VA providers must “produce benefits beyond PC3 (see Subsection 1.1.2.3) or address a need beyond PC3” (Robinson, June 11, 2014), and we learned in our interviews that this policy is updated to cover care provided through the Veterans Choice Program.

### 3.4.2.2 ARCH Program

The ARCH program is a small pilot, established in 2011 and initially intended to run for three years, aimed at improving access for Veterans in rural and underserved areas. The pilot was implemented at five sites (Pratt, KS; Caribou, ME; Farmville, VA.; Flagstaff, AZ; and Billings, MT), two of which chose to provide primary care, and three of which chose specialty care. Participation was limited to Veterans living in those counties who were enrolled when the pilot started and met one of three criteria: (1) lived more than 60 minutes driving time from the nearest VA health care facility providing primary care; (2) lived more than 120 minutes driving time from the nearest VA acute care facility; or (3) lived more than 240 minutes from the nearest VA tertiary care facility. Humana Veterans Health Services and Cary Medical Center (Maine only) serve as the third-party administrators. A recent evaluation of the initial three-year pilot reported that 5,945 Veterans received care through 27,705 outpatient encounters and 1,073 inpatient discharges (Altarum Institute, 2015). The pilot was extended to 2016 as part of the Veterans Choice Act legislation.

### 3.4.2.3 PC3 Program

The PC3 program was initiated in 2012 as a follow-on to an earlier pilot program that also used a third-party administrator in an attempt to improve the management and oversight of purchased care.<sup>36</sup> The PC3 program was intended to address some of the identified weaknesses in VA’s traditional purchased care vehicles, such as lack of provider credentialing, mismanagement of local contracts, variability in reimbursement rates, untimely and inaccurate payment of provider claims, and inadequate sharing of medical documentation by external providers, while addressing the need to provide more timely care to Veterans.

In the fall of 2013, VA awarded two regional contracts to Health Net Federal Services and TriWest Healthcare Alliance to provide external care for Veterans when a VAMC determines that it cannot provide the needed care due to a lack of specialists, geographic inaccessibility, and other factors. The program began in April 2014 after an approximate six-month implementation period in which the administrators built their provider networks and established the necessary infrastructure. Initially, PC3 was focused on specialty care, including

---

<sup>36</sup> Project HERO (Healthcare Effectiveness through Resource Optimization) was a pilot program implemented in four VISNs between 2007 and 2013 that utilized third-party administrators with networks of primary and specialty care providers.

mental health, but in August 2014 VA expanded the scope of the program to include primary care services.

PC3 contracts with the third-party administrators contain requirements for scheduling appointments within five days of receipt of VA authorization and ensuring that a patient can be seen within 30 days, providing an appointment reminder in writing, following up to ensure the appointment occurred, and paying provider claims within 30 days. Contracted providers also agree to return medical documentation within 14 days for outpatient visits and 30 days for inpatient visits. Health Net and TriWest negotiate reimbursement rates with providers that are, on average, 94.5 to 97.5 percent of Medicare rates for medical and surgical services, lower than the Medicare rates VA pays for individual authorizations (Robinson, June 11, 2014).

A recent VA Office of Inspector General review of the PC3 program (2015) reports that utilization of the program fell short of expectations in 2014, with only 6,900 completed authorizations and spending of \$3.8 million for health care services. VA spent an additional \$15.1 million on implementation and administrative fees for the program in 2014. VA projected utilization rates—PC3 authorizations divided by all purchased care authorizations—of 25 to 50 percent, but only achieved a 9-percent utilization rate in 2014. The VA Office of Inspector General attributes the low utilization to a combination of inadequate provider networks and lack of a strong implementation plan to ensure that VAMCs use the PC3 program over individual authorizations. If VA implementation costs are prorated over the base year and four option years, the FY 2014 PC3 contract cost would total about \$7 million. In comparison, the VA Office of Inspector General estimates that the cost of providing the care through individual authorizations would have been \$4 million. This \$3 million additional cost compares to a VA estimate of \$13 million in savings for FY 2014 as a result of the new program. The third-party administrators continue to attempt to add providers to their networks as they receive better information from VA about demand for various types of care by location.

### **3.4.2.4 Veterans Choice Program**

The most recent addition to the VA purchased care landscape is the Veterans Choice Program. Established by law in August 2014, this program empowers Veterans to seek care based on their distance from the closest VA medical facility and an inability to schedule an appointment at a VA facility within 30 days. Unless it is reauthorized, the temporary program will end when the allocated funds of \$10 billion are used or no later than August 7, 2017. With only three months allowed for implementation, VA expanded its contracts with the PC3 third-party administrators, Health Net and TriWest, and they quickly established the infrastructure for the program. As such, all PC3 providers are automatically eligible to be Veterans Choice providers; those providers who do not wish to participate in the PC3 program but who would like to be a Veterans Choice provider must sign an agreement with one of the administrators. In order to participate, providers must be Medicare-eligible, agree to accept Medicare rates, and agree to submit Veteran care reports after providing medical services.

VA leadership highlighted the challenge in predicting Veteran uptake for the program, forecasting spending over the next three years that ranges from \$3.8 billion and \$12.9 billion (McDonald, February 11, 2015). Early reports indicate lower than expected levels of utilization.

VA reported that, from the program's launch on November 4, 2014, to March 18, 2015, 46,429 Veterans had received authorizations for care under the Veteran's Choice Program, and non-VA providers had scheduled 44,461 appointments. As a comparison, in an average month, 6.4 million appointments are completed in VA and 1.3 million appointments are completed through purchased care programs (Gibson, 2015). Further, it was reported that VA is on track to spend only \$1.1 billion on the program this year (Miller, April 30, 2015). To make the program available to more Veterans, VA announced in late March 2015 a change in the calculation used to determine the distance between a Veteran's residence and the nearest VA medical facility from a straight-line distance to driving distance.

### 3.4.3 VA Partnerships to Deliver Care

VA extends its capacity through partnerships with DoD, the Indian Health Service, academic medical centers, FQHCs, and community mental health and substance use providers.

#### 3.4.3.1 DoD

VA and DoD collaborate to deliver benefits and services to Veterans, service members, military retirees, and beneficiaries. This partnership was established as a result of legislation that directed the organizations to look for opportunities to share medical resources,<sup>37</sup> and activities are overseen by the DoD–VA Joint Executive Committee. There are three vehicles for collaboration—sharing agreements,<sup>38</sup> joint ventures, and Joint Incentive Fund projects. Sharing agreements, which may cover a single service or multiple services, are typically negotiated by the heads of individual VA and DoD medical facilities, with review at the VISN and VA/DoD Sharing office at VA and the DoD/VA Program Coordination Office on the DoD side. Reimbursement rates for medical services are typically based on the Tricare Civilian Health and Medical Program of the Uniformed Services rate discounted by 10 percent (VA/DoD Health Executive Council, 2003), representing a savings relative to Medicare rates. Sharing agreements also allow for the exchange of services.

As of March 2015, there were 144 active VA/DoD sharing agreements nationwide between 48 VAMCs and 74 military treatment facilities for services, which include direct patient medical care; shared space; and administrative, dental, mental health, laundry, and ancillary services (VA/DoD Medical Sharing Office, March 11, 2015). Of the 74 military treatment facilities involved in sharing agreements, 38 provide direct medical care to Veterans. In 2014, VA reimbursed DoD \$119.1 million for services rendered, about equivalent to the amount spent in 2013 (VA/DoD Medical Sharing Office, March 11, 2015).

VA and DoD have several joint ventures, which involve a higher level of collaboration than sharing agreements and require commitments of at least five years. Joint ventures may involve multiple health care services, joint capital planning, and shared risk. Like sharing agreements,

---

<sup>37</sup> Public Law 97-174, VA/DoD Health Resources Sharing and Emergency Operations Act of 1982.

<sup>38</sup> Sharing agreements are written contracts that allow VA to buy, sell, or exchange health care resources and services with non-VA facilities.

## Assessment B (Health Care Capabilities)

the local partners determine whether they wish to work together, and approval must be obtained from department-level staff at both organizations. There are 10 joint venture locations (Petzel, 2013), including the North Chicago clinic, the only integrated VA/DoD federal health care center. These locations are listed in Table 3.4-4.

**Table 3.4-4. VA and DoD Joint Venture Locations**

DoD Facility	VA Facility	Location
Naval Health Clinic/ Joint Base Charleston/Naval Hospital and Beaufort	Charleston VAMC	Charleston, SC
Naval Health Clinic Jacksonville	Miami VAHCS CBOC	Key West, FL
Keesler Air Force Base	VA Gulf Coast HCS	Gulf Coast FL
Wm Beaumont Army Medical Center	El Paso VAHCS	El Paso, TX
Nellis Air Force Base	VA Southern Nevada HCS	Las Vegas, NV
David Grant Medical Center	N. California VAHCS	Fairfield, CA
Kirkland Air Force Base	New Mexico VAHCS	Albuquerque, NM
Tripler Army Medical Center	VA Pacific Island HCS	Honolulu, HI
Elmendorf Air Force Base	Alaska VAHCS	Anchorage, AK
James A. Lovell Federal Health Care Center	James A. Lovell Federal Health Care Center	North Chicago

Source: Petzel, 2013.

The third type of DoD-VA collaboration is the Joint Incentive Fund project, which provides funding for pilot projects across the two departments. The intent is to incentivize innovative DoD/VA sharing initiatives at the facility, regional and national levels. Project proposals are selected from an annual call for proposals across VA and DoD. From 2003, when Congress established the Joint Incentive Fund, until 2012, 130 projects were funded at a cost of \$418 million (GAO, 2012a). A 2012 GAO report indicated that this bottom-up process was likely insufficient to identify the full range of new opportunities for collaboration, and recommended more systematic investigation (GAO, 2012a).

### 3.4.3.2 Indian Health Service

VA and Indian Health Service announced a joint national agreement in 2012 under which VA agreed to reimburse Indian Health Service for direct care provided to eligible American Indian and Alaska Native Veterans. By July 2014, the two departments had completed 83 implementation plans, which establish processing and payment procedures at 108 health care facilities. VA also established 61 reimbursement agreements with Tribal Health Programs for tribally run health care facilities so that they can receive reimbursement for direct care services.

In FY 2014, VA reimbursed approximately \$11.2 million to Indian Health Service and the Tribal Health Programs for direct care services, up from \$6.2 million in 2013 (VA, 2015a).

### **3.4.3.3 Academic Medical Centers**

Affiliation and sharing agreements with academic medical centers provide VA with internal capacity as well as external resources. Affiliations were initiated in 1946 in an effort to assist VAMCs in recruiting high-quality physicians and to provide training sites for medical school residents and students (Leeman & Kilpatrick, 2000). VA is now the largest provider of medical training in the nation, accomplishing this through affiliation agreements between 152 VAMCs and 130 of 141 accredited U.S. medical schools (VHA, Procurement and Logistics Office, 2014). Affiliation agreements are standard templates that may be subject to review by the VA Medical Sharing /Affiliate Office depending on the size and type of agreement. VA has recently moved these contracting activities from VAMC employees to VISN staff.

In addition to individual authorization for Veteran care at academic medical centers, VA enters into multiyear sharing agreements with academic medical centers to provide care inside and outside of VA facilities. There are three types of sharing agreements—those that are based on a specified number of hours logged by a provider at VA facilities, those that are based on the number of procedures that are performed either at VA facilities or off-site, and those that are based on the number of patients served either at VA or off-site (VHA, Procurement and Logistics Office, 2014). In FY 2007, VA had a total of 1,714 clinical sharing agreements, valued at \$1.7 billion, with affiliated institutions, including medical schools and teaching hospitals. Of these, 669 were sole-source contracts, with a value of \$575 million (VA, Office of Inspector General, 2008). In 2014, VA reported spending \$1.17 billion under all clinical sharing agreements with affiliates and \$185 million under noncompetitive affiliate contracts. We were not able to determine the breakdown of spending for direct care of Veterans and ancillary and support services or between care provided in VA facilities and care provided at academic medical centers.

### **3.4.3.4 FQHCs**

As federally funded organizations, FQHCs are required to be located in medically underserved areas or to provide service to medically underserved populations. Given the large population of rural enrolled Veterans, FQHCs represent an important potential source of care. Providers at FQHCs may provide care to Veterans as a contracted CBOC, through individual authorizations, as part of specific contracted services, or that is not reimbursed by VA (Heisler, Panangala, & Bagalman, 2013). As an example of FQHC-contracted services, as of February 2012, VA had 52 contracts for FQHC-provided counseling services across 13 VISNS (Heisler, Panangala, & Bagalman, 2013). Through various actions, Congress has repeatedly encouraged VA collaboration with FQHCs, particularly for the care of rural enrolled Veterans (Heisler, Panangala, & Bagalman, 2013).

### **3.4.3.5 Community-Based Mental Health and Substance Use Clinics**

In 2014, VA established pilot partnerships with 24 community-based mental health and substance use clinics in nine states. These partnerships were formed in direct response to Executive Order 13625 in 2012, which directed VA, DoD, and the Department of Health and Human Services to take the necessary actions to ensure that Veterans, service members, and their families receive needed mental health and substance use services and support (Department of Defense, Department of Veterans Affairs, & Department of Health and Human Services, 2013). VA initiated the pilots to determine how community partnerships could help provide mental health and substance use services in areas that have staff recruitment and/or wait-time issues for mental health and substance use services. Sites were selected based on recruitment issues, performance data, and a willingness to participate; they were funded for one year. The partnerships offer a range of resources, such as telemental health, staff sharing, and space utilization agreements to allow VA providers to provide care in the community clinics. VA is conducting an evaluation of the pilot projects to determine the impact on Veteran access, wait times, and experience with mental health and substance use care at the participating clinics.

### **3.4.3.6 Non-VA CBOC Operators**

VA provides care to Veterans at 694 CBOCs,<sup>39</sup> which may be VA-owned and -operated, leased but staffed by VA personnel, or contracted sites in which the space is not VA owned and the staff are not VA personnel. In 2009, about 25 percent of CBOCs were contracted (Panangala & Mendez, 2010); the percentage contracted fell to about 15 percent in 2015. Some organizations may operate multiple CBOCs. As an example, a Humana subsidiary, Valor Healthcare, operates 21 CBOCs across the country. VA has also operated CBOCs in partnership with DoD facilities, Indian Health Service, and FQHC facilities. Under the standard VA contracts for CBOCs, contractors provide “health care staff, medical facilities, medical equipment, supplies, and all administrative functions sufficient to achieve the contracted level of care in a manner consistent with VHA standards” (Panangala & Mendez, 2010). VA also requires the contractor to utilize VA’s CPRS for documentation of all patient-related care. VA pays its CBOC contractors a monthly capitated rate based on each enrolled patient. These payments are not included in the total purchased care spending of \$7 billion for 2014.

### **3.4.4 Selecting a Purchased Care Program**

Prior to the implementation of the Veterans Choice Program, VA had an established hierarchy to guide VAMC decision-making about which program to utilize for purchased care (Figure 3.4-4). The first option is a VA facility, followed by care provided by other federal agencies, sharing agreements or university affiliations, PC3 or local contracts, and finally, individual authorizations. Interviewees indicated that compliance with this hierarchy is variable at the

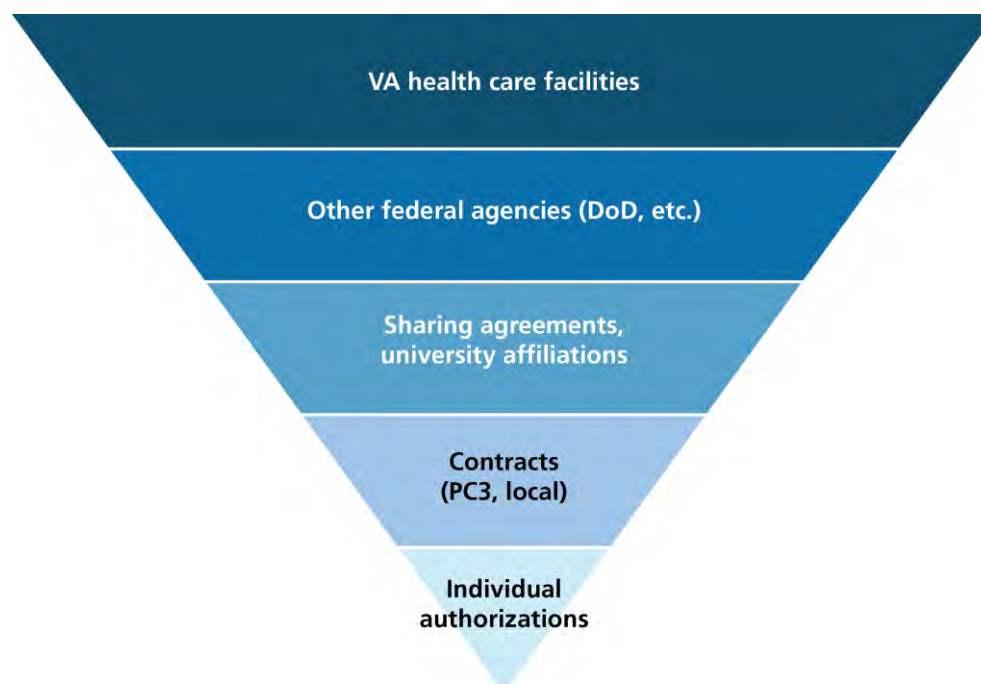
---

<sup>39</sup> This count reflects the changes to the Veterans Affairs Site Tracking System definitions in March 2015. The total includes 509 primary care CBOCs and 185 multispecialty CBOCs.



local level. With the addition of the Veterans Choice Program, VA is working to update its guidance to VAMCs about selection of the appropriate program.

**Figure 3.4-4. Hierarchy for Referrals to VA Purchased Care Programs**



Source: Robinson, 2014.

### 3.4.5 Challenges in Utilizing Care Delivered by Non-VA Entities

Relations with external entities that provide care to Veterans represent an important resource for VA; however, stakeholder interviews, Veteran service organization testimony, and government reports all point to numerous challenges associated with utilizing purchased care. These barriers reduce the potential of this resource to provide timely and accessible care. Some of these challenges are discussed in more detail in the Assessment C report, but we provide a brief overview below and describe some ways in which VA is addressing the challenges.

#### 3.4.5.1 Confusion About the Various Purchased Care Programs

The addition of the Veterans Choice Program further complicated an already complex system of authorities and purchased care programs and has created confusion among Veterans, VAMC staff, and providers. A survey conducted by the Veterans of Foreign Wars indicated that Veterans did not understand the eligibility criteria for the Veterans Choice program (Veterans of Foreign Wars of the US, March 2, 2015). VA has acknowledged gaps in employee and Veteran understanding of the program and related processes. To address these issues, VA has expanded its outreach efforts for Veterans and has developed employee trainings, named local “Choice Champions,” and is developing documentation to support local decision-making on using the appropriate non-VA program. Community provider confusion stems from the fact that

providers may be referred Veteran patients through multiple purchased care programs, each of which may have a different reimbursement rate and documentation requirements.

### **3.4.5.2 Contracting Issues**

In interviews, VA officials and experts indicated that contracts that VA negotiates directly with providers (not PC3 or Veterans Choice Program agreements) may take months to put in place and therefore reduce VA's ability to respond to local needs in a timely way and discourage non-VA providers from contracting with VA. One VA expert commented:

In previous work I've done in interfacing with private facilities who've had to work with VA, a common refrain was that they would rather do the work for free than to deal with the painful VA contracting processes that typically take many months and is very resource intensive; it took more resources to execute a contract than just do the work and take care of the Veterans themselves.

As part of VA's FY 2016 President's Budget, VA asked Congress for legislative change to the current contracting rules to streamline the process of purchasing care when other options are not available.

### **3.4.5.3 Monitoring Access to and the Cost of VA Purchased Care**

Historically, VA has not had the ability to track the wait times for Veterans to be seen by non-VA providers or the relative costs of VA and purchased care (GAO, 2013c). VA is beginning to monitor the timeliness of outside care through the implementation of the PC3 program as well as the Non-VA Care Coordination program. The Non-VA Care Coordination program utilizes VA personnel to schedule appointments with non-VA providers and document the wait time, among other things. However, VA has indicated to the GAO that it will not be able to monitor wait times for all purchased care until it completes a redesign of the claims processing system, which is expected in 2016 (Williamson, 2014). In its 2013 report, GAO also indicated that VA cannot assess the relative cost of purchased care due to an inability to analyze data on all services and charges for an episode of care. VA responded that it is working to improve its systems to enable this analysis but provided no timeline for implementation (Williamson, 2014). These challenges limit the effective use of this resource.

### **3.4.5.4 Information Sharing/Care Coordination/Fragmentation of Care**

A lack of information sharing and coordination of care with non-VA providers is a problem that is not unique to VA; fragmentation of care and information sharing are issues throughout the U.S. health care system. As in the private sector, fragmentation can adversely affect the quality and cost of Veteran care, particularly as VA referrals to non-VA providers increase. In the 2016 Independent Budget, the authors described the Veteran experience under the traditional program:

The IBVSOs [Independent Budget Veteran Service Organizations] believe VA has the obligation to lift the burden from Veteran patients who are bridging the fragmented and disconnected care VA buys from the private sector. Veterans are currently assumed to lead the sharing of information and communication between private providers and VA

when receiving VA-purchased care, particularly through fee-for-service. (AMVETS, Disabled American Veterans, Paralyzed Veterans of America, & Veterans of Foreign Wars of the U.S., 2015, p. 177)

VA is attempting to improve coordination through information sharing requirements for PC3 and Veterans Choice Program providers and through the Non-VA Care Coordination program. However, health records are typically faxed from non-VA providers and scanned into the VA system, decreasing their utility. VA has piloted electronic health information exchange with DoD and private providers, and these efforts are discussed in Subsection 3.5.

### **3.4.5.5 Collaborations with DoD**

A 2012 GAO report identified several key challenges in the collaborations between VA and DoD. First, the lack of interoperability in the IT systems impedes access to patient information. At some joint sites, workers even use two computers on the same desk to accommodate the incompatible systems. Although the two departments are no longer working on a common electronic health record, at some sites they are utilizing a software viewer that allows clinicians to jointly access health record systems. Second, the two departments use different business and administrative practices, including coding and billing systems, which can delay reimbursement. Different internal processes for provider credentialing and overlapping information security requirements also pose challenges for staff. For Veterans, gaining entry to military bases can be challenging. The entry requirements are designated by base commanders and may change over time to reflect the needs of the base. For Veteran patients, and people who accompany them to appointments, additional documents, entry delays, and background checks may pose barriers to site entry. Finally, VA and DoD do not have an aligned process for approving potential joint endeavors, so projects may not move forward when approvals and funding are on different timelines (GAO, 2012a).

### **3.4.5.6 Claims Processing Problems<sup>40</sup>**

Problems with the accuracy and timeliness of reimbursement for purchased care may affect the willingness of providers to accept VA patients and thereby limit this important resource. Purchased care medical care claims processing has undergone intensive scrutiny by the VA Office of Inspector General, the GAO, and others and was found to need attention and improvement. The VA Office of Inspector General reports (2009 and 2010) documented hundreds of millions of dollars in erroneous payments or missed revenue collection opportunities. VA has been working to improve business processes through the consolidation of staff and funding for purchased care claims processing under the Chief Business Office and through audits of VISN efforts to improve the timeliness of provider payments. Additionally, care provided through the PC3 and Veterans Choice programs is reimbursed by the third party administrators rather than VA.

---

<sup>40</sup> Assessment I is addressing Business Processes, including claims processing.

### 3.4.6 Subsection Summary

Care provided to Veterans through relations with non-VA entities represents a substantial and growing resource for VA. Care is provided to VA enrollees by non-VA providers through several programs and various types of payment or contractual arrangements that VA has negotiated with its partners. Preauthorized programs include individual authorizations; care obtained through partnership agreements between VA and DoD, Indian Health Service, and other entities; the ARCH program; the PC3 program; and the Veterans Choice Program.

Managing this resource has proven challenging. As VA was attempting to address some of the administrative challenges associated with arranging, coordinating, and reimbursing purchased care through the implementation of the PC3 program, the addition of the Veterans Choice program further complicated the situation and resulted in confusion among Veterans, VA employees, and non-VA providers. Both the PC3 and Choice programs have been underutilized relative to VA projections, and the PC3 program did not achieve the savings expected in 2014. In fact, care provided through the PC3 program cost more than it would have cost VA to purchase the care through individual authorizations due to the overhead costs, according to the VA Office of Inspector General. In addition, VA has not had the ability to track the wait times for Veterans to be seen by non-VA providers or the relative costs of VA and purchased care. VA also faces a lack of information sharing and coordination of care with non-VA providers, which can be detrimental to quality. Collaboration with DoD has also proved challenging and has limited the opportunities for gaining efficiencies through the sharing of resources.

VA and members of Congress have expressed a desire to more effectively utilize this important resource as demand increases. VA has been working to improve business processes through the consolidation of staff and funding for purchased care claims processing and through audits of VISN efforts to improve the timeliness of provider payments and has asked for changes in the law to allow a more streamlined contracting process. It is also working with the third-party administrators and VA staff to attempt to increase utilization of the PC3 and Choice programs.

In the next subsection, we take a closer look at VA IT resources (computing hardware, peripheral devices, software), which are used to support a wide range of capabilities that affect the ability of VA to deliver timely and accessible care.

## 3.5 IT Resources

IT resources (computing hardware, peripheral devices, software) support a wide range of capabilities that affect the ability of VA to deliver timely and accessible care. VA IT is being examined in detail in Assessment H from the strategy and management perspectives, and Assessment E will cover IT related to scheduling systems, so we have focused Assessment B on the IT resources that support a set of six IT capabilities that directly impact Veteran access to care:

- Telehealth: the use of technologies to provide clinical care when distance separates patients and providers

- MyHealtheVet: a patient portal that Veterans can use to perform actions such as downloading their medical record, sending messages to their providers, and refilling prescriptions
- Mobile applications: software that Veterans can use to monitor their health from their smartphones
- VistA/CPRS: VA's IT platform for patient records and clinical care and the graphical user interface for the electronic health record system
- Data exchange between local VA systems, with DoD, with private-sector providers, and directly with patients
- Care management: programs, often facilitated by IT, that attempt to proactively provide care for patients with the goal of improving outcomes and saving costs.

This subsection describes the types and extent of VA resources that support each capability, how they can be used to improve timely and accessible care for Veterans, variation in current use within VA, comparisons with non-VA organizations, and barriers to expansion.

A summary of the methods used in these analyses is shown in the box.

### **Overview of Methods and Data for Assessment of IT Resources**

- To identify IT resources and capabilities, we conducted a targeted review of the academic and gray literatures, focusing on six capabilities identified as most relevant to Assessment B: telehealth, MyHealtheVet, mobile applications, data exchange, core electronic health record functionalities, and care management.
- We used interviews with stakeholders internal and external to VA (conducted by our team, the qualitative team, and Assessment H) to address the mechanisms by which the capability may affect timely and accessible care to Veterans, VA's resources and capabilities to use the capability, and barriers to expanding use of and improvements to the capability. We also reviewed the academic literature and gray literature, including VA publications supplied to us by key informants, from 2010 to the present.
- Additional data concerning access to IT, use of IT, and usability and user satisfaction were obtained from the VHA Support Service Center.
- For complete details of the methods used to assess IT resources, please refer to Section 2 of this report.

### **3.5.1 Telehealth**

VA defines telehealth as the use of technologies to provide clinical care when distance separates patients and providers. The main objective of telehealth is to increase access by bringing the full breadth of VA care to locations where these services do not exist (for example, rural outpatient clinics, Veterans' homes). The roles of telehealth in expanding access to care in VA are further discussed in Appendix E. Telehealth has been a focus for VA for more than a decade, and VA is now recognized as a world leader in this area, with no other delivery system offering such an extensive range of telehealth services at such a large scale.

### 3.5.1.1 Current Telehealth Utilization

Telehealth within VA consists of three modalities: clinical video telehealth, store and forward telehealth, and home telehealth (Table 3.5-1). We will describe primarily the first two in this subsection because home telehealth will be discussed in the context of tools for care management in Subsection 3.5.6.

The resources required vary considerably depending on the modality and the service line (for example, specialty care, primary care); however, clinical video telehealth programs generally require equipment (for example, telehealth cart with or without peripherals to support a physical examination), a consulting clinician at the remote site (for example, VAMC), an assisting provider and/or telehealth clinical technician at the patient's site, Internet bandwidth sufficient to support two-way transmission of video or other modality, and dedicated space at both the remote and patient sites.

**Table 3.5-1. Telehealth Definitions**

Modality	Description	Objective
Clinical video telehealth	Use of real-time interactive video conferencing, sometimes with supportive peripheral technologies, to assess, treat and provide care to a patient remotely. Typically, clinical video telehealth links patient(s) at a clinic to provider(s) at another location; however, it can also connect a remote provider and a patient at home.	<ul style="list-style-type: none"> <li>▪ Provide access to specialists practicing in regional medical centers</li> <li>▪ Reduce travel burden for Veterans in remote or underserved areas</li> </ul>
Store-and-forward telehealth	Use of technologies to acquire and store clinical information (for example, high-resolution images, sound, and video) that is then made available to a provider at another location for clinical evaluation. It is frequently used in radiology, dermatology, and diabetic retinopathy.	<ul style="list-style-type: none"> <li>▪ Provide access to specialists practicing in regional medical centers</li> <li>▪ Reduce travel burden for Veterans in remote or underserved areas</li> </ul>
Home telehealth	Applies care and case management principles to coordinate care using health informatics, disease management, and technologies such as in-home and mobile monitoring, messaging, and/or video technologies.	<ul style="list-style-type: none"> <li>▪ Facilitate continuous (non-episodic care) to improve clinical outcomes</li> <li>▪ Provide acute and chronic care management, and promote health and disease prevention</li> </ul>

Sources: Darkins, 2013, and "VA Telehealth Services" at <http://www.telehealth.va.gov/>.

According to VA data, 690,000 Veterans (approximately 12 percent of VA enrollees) utilized one or more telehealth modalities in FY 2014, engaging in more than 2 million telehealth visits (VA,

2014f). Telehealth use has grown rapidly in recent years. For example, 380,000 unique Veterans participated in store-and-forward visits in 2014 compared with 311,000 the year before, and approximately 250,000 patients used clinical video telehealth between VA clinics in 2014 compared with 203,000 in 2013. In 2014, 4,000 Veterans received clinical video telehealth visits directly into their homes versus 2,250 in 2013. In FY 2014, VA's Office of Rural Health alone funded a set of initiatives that saved rural Veterans approximately 8 million miles in travel, representing 38 miles saved per telehealth visit. This represents a small piece of the overall impact of telehealth for patients in VA, including increased convenience and reduced time and travel costs. In recent years, telehealth has expanded to cover 45 specialties. Detailed operations manuals now provide specific guidance for several clinical telehealth services including Telemental Health, TeleDermatology, TelePrimary Care, TeleAudiology, TeleRehabilitation (including amputation care), TeleNutrition, TeleWomen's Health, and TeleRetinal Imaging. More than 11,406 VA staff members are trained annually to build competencies related to the business, clinical, and technology aspects of all three modalities, according to VA staff.

While telehealth is used in a wide range of clinical areas, a few types of encounters account for the majority of utilization. In 2014, four types of encounters accounted for more than 50 percent of all clinical video telehealth encounters: mental health, MOVE! Weight Management Program (a weight management program), clinical pharmacy, and primary care medicine. Three encounter types accounted for 98.9 percent of all store-and-forward telehealth encounters: diabetic retinal screening, electrocardiography, and dermatology (Table 3.5-2) (Telehealth Cube, VSSC, 2015d). The facilities survey conducted in coordination with this assessment found that among five specific clinical conditions (PTSD, SUD, TBI, colon cancer, and type 2 diabetes), clinical video telehealth between provider and patient was the most widely used telehealth modality. According to survey respondents, this was usually conducted with a provider in a VAMC (77 percent of the time) and patients at a CBOC (67 percent of the time, the patient was at a small or medium CBOC). However, some patients at VAMCs were on the receiving end of clinical video telehealth as well.

**Table 3.5-2. Number of VA Telehealth Encounters by Type, 2014**

Encounter Type	Number of VA Telehealth Encounters
<b>Clinical video telehealth</b>	
Mental health clinic	374,919
MOVE! Weight Management Program Group*	142,984
Clinical pharmacy	69,507
Primary care medicine	52,689
Psychiatry	51,642

## Assessment B (Health Care Capabilities)

Encounter Type	Number of VA Telehealth Encounters
PTSD clinical team	31,745
Audiology	31,476
Mental health integrated care	28,633
Nutrition/dietetics	28,238
Anti-coagulation clinic	26,264
Diabetes	23,351
Mental health clinic group	21,597
Psychology	20,728
Substance use disorder group	19,793
Physical therapy	15,511
<b>Store-and-forward telehealth</b>	
Diabetic retinal screening	424,485
Electrocardiography	185,816
Dermatology	129,823
Cardiology	3,226
Pulmonary function	2,716

Source: VA, 2015d.

Notes: “MOVE! Weight Management Program Group” is a national weight management program. Encounter types are defined by VA using “stop codes,” which are internal VA codes that categorize encounters by the site and/or type of care delivered.

Veterans report very high levels of satisfaction with these widely used telehealth services. Surveys of Veterans in 2013 found that 94 percent were satisfied with clinical video telehealth, 95 percent with store-and-forward telehealth, and 84 percent with home telehealth (VA Telehealth Services Fact Sheet, FY 2014c). Furthermore, a 2014 survey of 11,000 clinical video telehealth users found that 88 percent preferred telehealth to traveling a long distance to see a provider (VA, 2015a).

### 3.5.1.2 Telehealth Use Outside VA

Comparative data on telehealth use from outside VA are limited because there are few organizations using telehealth at a similar scale. Where comparative data are available, it is clear that VA is delivering more care and a greater range of services via telehealth than private-sector organizations. The federal Indian Health Service is also widely implementing telehealth,



but no publicly available data describe the full extent of its reach. VA and the Indian Health Service are in a unique position to set the industry standard, in part due to their ability to structure services based on their institutional missions with fewer concerns about the impact on revenue than fee-for-service health systems. VA also has fewer barriers to telehealth (such as state medical licensing requirements) than the private sector. Next, we describe telehealth usage for several public and private-sector organizations that have published data on this topic.

**Kaiser Permanente:** Kaiser Permanente in Northern California reported that the number of virtual visits (including email, telephone, and video) for its 3.4 million members grew from 4.1 million in 2008 to 10.5 million in 2013. Kaiser has not independently reported the number of video visits, but expects them to surpass the number of in-person office visits by 2016 (Pearl, 2014).

**Indian Health Service:** Although we could not identify any literature on the full extent of the Indian Health Service's telehealth use, the Indian Health Service is aggressively pursuing telehealth because Indian Health Service and tribal health care facilities are predominantly in rural and isolated settings with little access to specialty services, and travel costs to bring patients to specialists are prohibitive. As one example, the Alaska Federal Health Care Access Network has been installed in 250 sites throughout Alaska. In 2013, 1,686 clinicians used this system to deliver 36,229 episodes of care for 22,982 patients—16 percent of all Alaskan natives (Hays et al., 2014).

**Medicare:** In 2009, fewer than 14,000 Medicare beneficiaries (of approximately 8 million eligible due to their rural location) engaged in 38,000 telehealth visits. As such, telehealth reached approximately 0.2 percent of the eligible population in that year. Of the 38,000 telehealth visits, 62 percent were for mental health services: pharmacological management (47 percent), individual psychotherapy (8 percent), and psychiatrist diagnostic interview examinations (7 percent). Almost one-third were office and other outpatient visits, and 5 percent were end-stage renal disease consultations (Gilman & Stensland, 2013).

**Department of Defense:** The DoD National Center for Telehealth and Technology oversees projects related to mobile health, telehealth, and other emerging technologies. Within DoD, the Army conducted approximately 36,300 encounters in FY 2013, the majority of which involved soldiers in garrison. The Center provides resources for active-duty soldiers, reserves, and their families. The Army's telehealth program covers 28 different specialties, but it focuses heavily on behavioral health: Tele-behavioral health accounts for 85 percent of the total telehealth volume in garrison and 57 percent in operational environments (Bloch, April 16, 2014). Virtual care is provided through various means, including a telephonic nonmedical counseling program as well as the mobile applications described below, some of which are developed jointly with VA (National Center for PTSD, 2014). The Air Force and Navy have some of their own programs as well as some joint efforts, for example, tele-critical care, tele-behavioral health, and provider-to-provider tele-consultation in the Pacific (Bloch, 2014).

### 3.5.1.3 Telehealth Innovation

While VA continues to refine and expand its traditional telehealth offerings, it also regularly develops and tests potential innovations. For example, clinical video telehealth was introduced

in 2002, but VA is expanding telehealth to serve patients in their homes rather than telehealth-enabled clinics. Piloted in 2012, this program allowed 2,248 Veterans to receive secure encrypted video consultations in their homes and on their personal computers by 2013. A year later, the number of Veterans served by this program nearly doubled to 4,000 (Darkins, 2014; VA, *VA Virtual Health Care Access Presentation*, 2015). While the program is adding eligible Veterans each month, a number of barriers exist to its further expansion. Interview participants noted that various program requirements, such as the need for Veterans to have their own webcams and high-speed Internet, are significant barriers to participation. A 2013 survey of Veterans found 70 percent accessed the Internet, but 8 percent of these Veterans had only a dial-up connection (ICF International, 2013; VA, 2013b). Furthermore, interview participants explained that Veterans drop out of the program due to lack of technical support, as the national telehealth help desk cannot talk directly to patients to resolve their IT challenges.

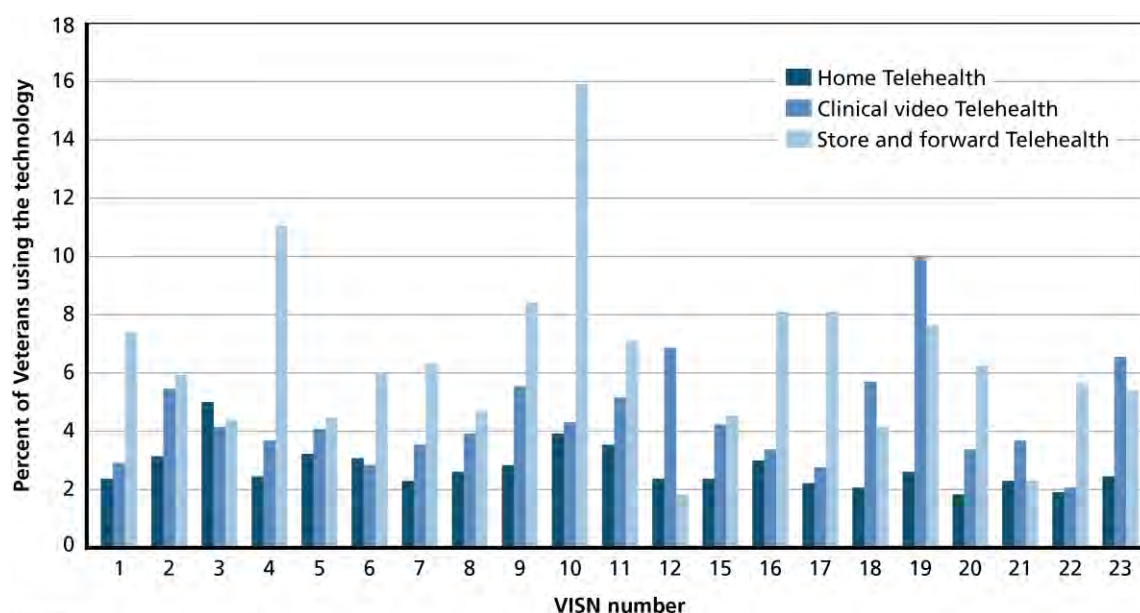
Other examples of innovative pilots identified by interview participants included the Telehealth Intensive Care Unit (TeleICU), Telewound, and teleanesthesiology. TeleICU connects VAMC ICU staff with TeleICU central monitoring center staff for real-time interaction and patient monitoring, which especially benefits VA's ICU patients in rural and smaller VAMC ICUs that may be understaffed (VA, 2014a). Telewound, on the other hand, is an example of store-and-forward telehealth. According to one interview participant, six VISNs were recently given funding to implement programs in which images of wounds would be sent to a wound care technician to help guide the treatment process at a remote location. Finally, in teleanesthesiology, Veterans who previously saw multiple providers for pre-operative care can now go to a CBOC and see both a nurse and an anesthesiologist via clinical video telehealth in a 45-minute period.

### **3.5.1.4 Geographic Variation in Telehealth Use**

While telehealth is widespread in VA, use varies considerably across regions and populations. VA has released statistics demonstrating that telehealth reaches rural Veterans preferentially, which aligns with VA's goals to increase access to the underserved. While rural Veterans constitute 30 percent of the Veteran population, they represented 45 to 55 percent of all telehealth users in 2013–2014 (Peterson, 2014; VA, 2014f).

However, internal VA data suggest considerable variation across VISNs in the percentage of Veterans who accessed telehealth in FY 2014 (Figure 3.5-1). For example, the percentage of unique patients that used one or more modality in a given VISN varied from 8 percent to 22 percent.

Figure 3.5-1. Percentage of Veterans Using Telehealth Modalities by VISN, FY 2014



MS4675B-3.5-1

Source: Telehealth Cube (Virtual Care Modality, FY 2014 data), VSSC, 2015.

Notes: VISNs 13 and 14 do not exist. City hubs associated with each VISN are listed in Table 3.1-3.

The geographic reach of telehealth encounters is fairly limited because VISNs primarily serve patients in their own regions. In 2014, 99 percent of telehealth visits (clinical video and store-and-forward) were delivered within VISNs rather than across VISNs, with only six VISNs providing telehealth consults to 10 or more other VISNs. VISNs 1, 11, and 19 had the largest proportion of their total telehealth visits with patients in other VISNs (a range of 3–7 percent) (VA, 2015b). VISN 19, for example, provides genetic counseling services via telehealth to patients across VA. The fact that telehealth is a relatively localized phenomenon may represent a missed opportunity for load balancing across the VA system.

Interview participants identified several reasons why VISN-to-VISN telehealth is not more widespread. First, staff at a given VAMC may not know which VAMCs outside of their VISN have extra capacity and what services are offered. Second, VISN-to-VISN telehealth has negative implications for workload credit. “When you have a local provider and patient you get credit for one visit. When you are connecting to another facility outside your VISN, you get a 0.5,” one participant explained. Finally, there is a shared understanding that, as a training institution, each medical center must have its own capabilities. According to another interview participant:

Part of VA is doing education and you don’t want to take educational opportunities away, so for things that are pretty basic...you want to provide that care at the local site if you are a teaching hospital, so we can’t lose sight of that. You can’t say that hospital A is going to do cardiology for everyone because

hospital B and C also have cardiology programs that need to support their residency programs.

Just as there is limited use of VISN-to-VISN telehealth, relatively few Veterans are accessing telehealth from non-VA sites, such as non-VA medical facilities. Greater use of non-VA sites would offer additional convenience for Veterans and further increase access in communities where VA has limited or no presence. Of the approximately 250,000 Veterans who used clinical video telehealth in 2014, only 0.3 percent were at non-VA sites other than their homes. Interview participants mentioned several sites with which their VAMC clinicians currently connect, including non-VA hospitals and long-term care facilities, universities, and prisons; they also acknowledged that non-VA sites are underutilized and their use should be expanded.

### 3.5.1.5 Barriers to Greater Use of Telehealth

VA performance measures currently address the proportion of Veterans using any form of virtual care (for example, telehealth, secure messaging, and e-consults) as well as one or more modalities of telehealth. In FY 2015, VA's target is to have 16 percent of unique Veterans using the three types of telehealth.

Although telehealth has grown rapidly, its growth has fallen short of VA targets, reaching 11–12 percent of Veterans in 2013 and 2014. This led VA to survey VISNs and VHA Telehealth Services in summer 2014 regarding barriers to telemedicine use. VA found that the leading barriers were insufficient space for telehealth, inadequate Office of Information and Technology and Biomedical Engineering infrastructure and support, lack of leadership/provider buy-in, and insufficient staffing resources. Our interviews largely confirmed these findings, with a few minor differences. Interview participants did not independently identify insufficient staffing resources as distinct from provider buy-in; however, in a few instances they described problems filling the position of CBOC telehealth clinical technician. Interview participants also placed greater emphasis on insufficient bandwidth at CBOCs. Below we describe each leading barrier in greater depth.

**Insufficient space for telehealth.** According to VA internal analyses, “New services that can be provided at CBOCs where they did not exist before, such as TeleAudiology, TeleRetinal Imaging, and TeleCardiology, require a clinical room or space for the patient to be able to connect via video to the provider at the remote site. Therefore, new telehealth clinics compete with space created for and currently used for in-person primary care visits.” Interview participants also echoed this concern, explaining that “there are major space constraints at CBOCs” and “telehealth and face-to-face care are in constant competition for space.” As one interview participant explained, “Telehealth really got started in 2012, and by that time, other specialties were already there. Everyone had to find one room for telehealth, but that is often all we have.”

**Inadequate Office of Information and Technology and Biomedical Engineering infrastructure and support.** As VA is currently organized, the Office of Information and Technology is responsible for IT assets and resources across VA, while clinical devices and their associated computer hardware are managed by Biomedical Engineering, which is under VHA but separate from other VHA technology programs. As a result, while programs like MyHealtheVet and many

telehealth services are managed within VHA, the Office of Information and Technology or Biomedical Engineering may provide technical support. According to VA's internal assessment of barriers to telehealth, "VISNs have reported that the decentralization of Office of Information & Technology and Biomedical Engineering; the interdependent yet uncoordinated relationship between them; and the lack of national guidance for clarity on roles and responsibilities, have all contributed to issues with coordination and communication which has impeded the expansion of Telehealth services" (VHA Telehealth Services, 2014).

Interview participants referenced the same challenges, focusing specifically on difficulties engaging with the Office of Information and Technology to obtain resources and support. One specific complaint from multiple interview participants focused on Internet bandwidth: particularly at rural CBOCs, interviewees described insufficient bandwidth as a barrier to clinical video telehealth visits. At the same time, concern about bandwidth was not universal; several interview participants said this was a problem in the past but has largely been resolved. VA analyses also point out that while VA staff perceive existing bandwidth to be a problem, the extent to which it is problematic in practice is unclear. According to VA internal analyses:

Although IT bandwidth capacity has been raised as a central issue by VISNs, the Office of Information & Technology has completed an analysis which showed that 1.1 percent of circuits have reached an 80 percent capacity/utilization threshold (75 out of 6,565). The Office of Information & Technology states that 96 percent of data circuits run at less than 60 percent utilization on average, with a median utilization of 20 percent.

As the VA report states, "It is not clear yet whether bandwidth is truly a limiting factor," or whether it is perceived as such because sites do not know to request additional bandwidth or do not receive it when needed. Interview participants expressed many challenges with the Office of Information and Technology, including that the regionalization has created a gap between assessment of requirements and managing bandwidth and performance to meet those needs. Communication gaps between VAMCs and the Office of Information and Technology are addressed in Assessment H.

**Lack of provider buy-in.** Clinicians who were interviewed expressed mixed views about telehealth. While some regularly provided telehealth visits within their VISN, others said they lack the capacity to add another service. As one clinician said, "I can tell you that in cardiology we're not ready for [telehealth] because it is adding a service where physicians are already stretched and it's not an efficient service. It is not like you'd be able to see more patients because it is more efficient. It would just be more patients and harder on you." Front office and administrative staff noted that providers are more likely to engage in telehealth in facilities "where leadership holds clinical staff accountable" and where telehealth use is incentivized. At the time of this report, VA as a whole has no specific performance measure or policies that require providers to offer telehealth. One interview participant explained: "Some have tied in performance pay for providers. This happens sporadically, on a service-by-service basis, not at the facility level."

**Other barriers.** Although these are the most significant barriers that interview participants identified, it is not an exhaustive list. Select interview participants highlighted burdensome

business rules with respect to credentialing and privileging, and complexities related to scheduling (both discussed in more detail in Assessment H). Interestingly, no interview participants cited patient acceptance as a major barrier. Although interview participants acknowledged that “telehealth is not for everyone,” the consensus was that most Veterans—even older Veterans who may not be familiar with the technology—are accepting of telehealth. According to one clinician, “Patients like it. They say anything they can do through . . . they call it the TV . . . helps them. If they don’t have to get on the road, they like it.”

### **3.5.1.6 A New Form of Telehealth: e-Consults**

A promising new form of telehealth is e-Consults, which has been spreading to more VA sites. These electronic consults allow primary care physicians to contact specialists who review the patient record and respond with treatment advice or recommend an in-person visit. Providers submitting requests for e-Consults to local specialists are instructed to use the feature only for non-emergent issues, and specialists are expected to respond within three business days. Because the request process occurs within CPRS, relevant medical records, lab results, and other test results are available to the consultant via the electronic health record (McAdams, Cannavo, & Orlander, 2014).

In interviews, primary care physicians have praised the potential of e-Consults as a fast and easy way to increase efficiency of provider communication (Zuchowski et al., 2015). Early survey results show very high rates of satisfaction among primary care physicians (93 percent satisfied) and patients, with lower satisfaction rates for specialists (53 percent satisfied). A 2010 survey found similar results, with primary care physicians and Veterans very satisfied (median of 5 on a 1–5 scale) and specialists reporting slightly less satisfaction (3.5) (Rodriguez et al., 2015). Specialists were concerned that e-Consults did not decrease the utilization of face-to-face visits, though more agreed that the program increases quality of care. Researchers concluded that in some cases e-Consults eliminate the need for a face-to-face visit, thereby reducing patient travel and copays. When an e-Consult does not eliminate the need for a face-to-face visit, it can still increase appropriate pre-visit diagnostic testing or treatment adjustments, improve care coordination, and reassure the patient’s primary care physician (McAdams, Cannavo, & Orlander, 2014).

In 2014, VA Central Office updated its policy to allow three levels of workload credit for e-Consults based on time spent responding to consults, a move that may increase specialist satisfaction. The authors conclude that the program seems to meet the goal of “using telehealth to improve Veterans’ access to specialty care and coordination of care between [primary care physicians] and specialists.”

### **3.5.2 MyHealtheVet**

MyHealtheVet is a patient portal available to all Veterans who have Internet access and have been properly authenticated by VA. Users can download their medical record and send secure messages to their providers concerning clinical questions and prescription refill requests. To prevent fraud, VA has required in-person authentication following online registration to validate the patient’s identity before they can gain full use of the services.

As of March of 2015, a total of 3.2 million people had ever registered for MyHealtheVet since its inception in 2004. 1.86 million have gone through the in-person authentication process and 1.2 million have opted to use secure messaging. As illustrated in Table 3.5-3, a large proportion of this activity has occurred within the past five years. 2.1 million Veterans, providers, and family members have registered since 2010 and the number of logins recorded since then has an average yearly growth rate of 48 percent. In addition, the rates at which patients have chosen to authenticate and use secure messaging demonstrate increased adoption: by 2014, secure messaging grew by 150 times compared with 2010, and in March 2015, almost 1 million messages were exchanged between providers and patients, according to internal VA records.

**Table 3.5-3. Growth Trends in the Adoption and Use of MyHealtheVet, 2010-2014**

Fiscal Year	New Registrations	New Authentications	VA Patients Opting-In for Secure Messaging	Unique Registrants Logging In	Total Logins	Total VA Patients
2010	240,300	83,700	2,300	569,900	6,199,600	6,000,110
2011	349,500	193,900	100,900	778,200	9,349,200	6,166,191
2012	497,000	470,300	375,600	1,122,100	16,419,400	6,333,091
2013	535,700	439,100	312,600	1,353,700	22,913,400	6,484,664
2014	513,900	382,400	300,700	1,537,500	28,755,200	6,616,963

Source: Internal VA data and Bagalman, 2014.

The use of secure messaging is also increasing, with VA patients or their health care team initiating 39 percent more messages in FY 2015 than in a similar period in 2014 (VA, 2015a). Secure messaging has been associated with fewer urgent care visits (Shimada et al., 2013), suggesting that increased use could free up resources and ultimately improve access to in-person care. One interviewee noted that a recent evaluation found that just 11.6 percent out of 1,000 secure messages contained questions on health issues, while around 55 percent requested services that could be covered by registered nurses or pharmacists such as medication refill requests and scheduling questions.

MyHealtheVet use varies widely across VA facilities and VISNs. The cross-sectional MyHealtheVet study of 6 million Veterans described above (Shimada et al., 2014) reported registration rates ranging from less than 10 percent to almost 35 percent of patients seen at the facility. Authentication rates ranged from three percent to 30 percent of patients. There is also wide variation in the use of secure messaging at the VISN level, ranging from less than 17 percent to 37 percent of unique Veterans receiving care at VA (excluding pharmacy) in FY 2014 (authors' analysis of VSSC data). Facilities with volunteers or computers on-site to help Veterans register and use the tool had higher rates of MyHealtheVet uptake (Shimada et al., 2013). Patient demographics influenced the likelihood of uptake as well—those using MyHealtheVet were more likely to be younger, white, female, and more affluent. Uptake also

varied with diagnosis, with higher uptake among those with trauma-related or mental health diagnoses, human immunodeficiency virus, hyperlipidemia, and spinal cord injuries (Shimada et al., 2014).

A new feature of MyHealtheVet is access to full medical notes written by clinicians, allowing Veterans to better understand their care, correct errors, and improve engagement. After a successful pilot in which researchers found that “Viewing their records appears to empower patients and enhance their contributions to care” (Woods et al., 2013), VA in 2013 made clinical notes available through MyHealtheVet, including outpatient primary care and specialty visit notes, discharge summaries, and emergency department visit notes (VA, 2013a). A survey of early adopters found that a majority of the users of VA’s version, called VA Notes, agreed that “accessing their notes will help them to do a better job of taking medications as prescribed (80.1 percent) and be better prepared for clinic visits (88.6 percent)” (Nazi et al., 2014).

Secure messaging use has been included in VA performance measures; VA’s 2013–2015 Strategic Plan for National Telehealth Services aimed to reach 50 percent of Veterans using virtual care (VA, Office of Patient Care Services, 2012). Given a projection of telehealth being able to reach 16 percent of Veterans, secure messaging and other tools like e-Consults would have to reach 34 percent to reach the 50 percent target. As described above, use has been increasing, and while some facilities have reached this 50 percent target, no VISN has. VA reports 32 percent use overall of any virtual care modality in FY 2014 (VHA Support Service Center Capital Assets, 2014).

Frequent surveys of MyHealtheVet users suggest that they are happy with the tool. At least 75 percent expressed satisfaction with a number of aspects, including content, functionality, look and feel, and site performance (VA, 2015b). Providers mentioned that it has facilitated their ability to address lower-risk issues or tasks since many patients utilize email and “electronic communication is a huge time saver” compared with other means such as the telephone.

However, there are barriers to further expanding the use of MyHealtheVet. VA employees we interviewed noted that in addition to the administrative burden on users of registering for MyHealtheVet, issues with the technology have hindered broader adoption. Veterans must have Internet access if they want to use MyHealtheVet, and a 2013 survey found that 30 percent of Veterans do not access the Internet. This is particularly an issue for rural Veterans, who are less likely to have Internet access; internal estimates from 2013 suggest that while 68 percent of urban Veterans report Internet access, only 59 percent of highly rural Veterans do. Interviewees also noted that Veterans with access to their medical information do not necessarily understand the clinical information in their MyHealtheVet profile.

Providers suggest that this confusion may require additional consultations or secure messages to explain the data. However, this issue may be mitigated by proxy access, which is in the process of being implemented. This will let a Veteran give a spouse or caregiver access to a MyHealtheVet account in their own name, rather than using the Veteran’s login credentials. Lastly, the literature has noted navigability, readability, and other usability issues (Haun et al., 2014); an upcoming redesign is intended to improve ease of use.



In addition to these hurdles for patients, providers also face barriers that decrease their willingness to use the system, including a lack of integration with other clinical data systems. Providers use one electronic system for clinical documentation, but they need to enter a separate system to access secure messages. This lack of integration is partly by design due to security concerns and partly due to technical limitations, though there is awareness and desire for better integration of all virtual care systems on the part of many staff and leaders we interviewed. The OneVA program<sup>41</sup> may be the beginning of this integration attempt; interviewees told us that the Federal Emergency Management Agency Chief Information Officer will be taking a role in leading integration as well.

Providers also cited time burdens associated with answering secure messaging as a barrier to using MyHealtheVet, claiming they were not credited for their time using the tool. Even though office staff handle many of the messages, such as refill requests and appointment scheduling, the tool requires a lot of physician time. However, these concerns seem to have been heard by administrators, who have begun rolling out a “secure messaging workload credit” in an effort to increase provider use and satisfaction. They also plan to improve categorization of messages in the upcoming MyHealtheVet redesign so that messages are routed appropriately.

Patient portals “have the potential to improve both quality and access to care” (Emont, 2013). Evidence shows they can increase care efficiency and productivity, decrease the volume of phone calls and visits, improve chronic disease management, and engage patients. In addition, portal usage can create cost savings due to fewer phone calls, online scheduling, and other features (Emont, 2013). Other studies suggest that the benefits of these tools are limited to populations with the health literacy required to access and understand its features, which may enhance the educational and racial disparities in care for older Americans (Smith et al., 2015). Two recent systematic reviews, however, suggested that there are not enough data to show an impact of portals on medical outcomes (Goldzweig et al., 2013; Kruse, Bolton, & Freriks, 2015).

MyHealtheVet is similar to tools used by other major health care systems, though given the many contextual differences, direct comparisons are not possible. For reference, 62 percent of U.S. hospitals had a patient portal as of 2014 (Wise et al., 2015), and registration rates in each health group varied. For example, 25 percent of primary care patients at Geisinger registered with their portal as of 2011. Kaiser Permanente’s portal registration reached 25 percent in 2009 (Emont, 2013) and was up to 73 percent by 2013. Kaiser Permanente’s portal allows patients to choose a doctor, schedule appointments, view laboratory results, and order refills (Pearl, 2014). Satisfaction with the Kaiser Permanente tool is very high: 87 percent said in a 2013 survey that messaging with their doctor “did a very good or excellent job of meeting their needs.” Kaiser Permanente also reported 2.3 million telephone visits in 2013, also with very high satisfaction results (Pearl, 2014).

---

<sup>41</sup> The OneVA Enterprise Architecture program’s mission is to “serve as a strategic planning and management tool that helps VA’s leadership chart the course for the Department’s transformation into a 21st century organization.” (<http://www.ea.oit.va.gov/EAOIT/OneVA/EAOneVAEA.asp>)

### 3.5.3 Mobile Applications

Mobile applications (apps)—software that Veterans (or anyone) can download and use from their smartphones to monitor their health—may improve access in many ways: assisting in self-help for people who do not need high levels of care, providing supplemental therapy in conjunction with care, and reducing stigma in seeking mental health support.

VA’s Office of Connected Health has been rolling out apps for Veterans as well as providers. Media coverage has been enthusiastic:

VA distributed over 10,000 tablets to clinicians across the country last year and launched a mobile app store with more than a dozen apps to provide Veterans with access to health services. The apps have been downloaded by more than 300,000 users since their release, according to VA officials (Jayakumar, 2015).

However, this article also notes that VA is “cautious,” keeping the apps separate from electronic records and primarily using them to dispense general advice.

As of May 2015, 22 apps were available in the VA app store (<https://mobile.va.gov/appstore>), up from 11 in December 2014 (VA, 2014b). However, in interviews with VA leaders and health care providers, we found little use or even awareness of these tools. Chiefs of staff and medical directors were generally unable to discuss any apps actually used by patients or providers. While some were aware of an app store for Veterans, the use of mobile applications to engage Veterans with their providers appears to be limited.

Mental health is the clinical area with the greatest app use, with 11 different apps and many downloads (Table 3.5-4; we have not identified comparable download counts for the other 11 VA mobile apps). Most are self-help tools that can be used in conjunction with formal therapy. VA’s first app was PTSD Coach, which has been downloaded 180,000 times in 85 countries and translated into several languages.

**Table 3.5-4. VA Mobile Applications**

App Name	Description	Launch Date	Countries	iOS Downloads	Android Downloads	Total Downloads
311VET	Allows Veterans to ask general VA Benefits questions and receive answers 24/7/365	May 20, 2015	59	2,280	1,077	3,357

## Assessment B (Health Care Capabilities)

App Name	Description	Launch Date	Countries	iOS Downloads	Android Downloads	Total Downloads
ACT Coach	Connects Veterans to a provider for acceptance and commitment therapy	Feb 5, 2014	56	4,685	n/a	4,685
CBT-i Coach	Used in cognitive behavioral therapy for insomnia	Jun 5, 2013	80	30,080	11,515	41,595
Concussion Coach	A resource to treat concussion or mild TBI symptoms	Nov 18, 2013	64	4,390	n/a	4,390
CPT Coach	Helps treat PTSD through cognitive processing theory	Feb 6, 2014	49	5,121	n/a	5,121
Exposure Ed	Provides information on military-related exposures to health care providers	Jan 13, 2014	20	2,500	n/a	2,500
Imaging Viewing Solution	Allows VA clinicians and other relevant staff to view patients' X-rays and other stored images	NA	NA	NA	NA	NA

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

App Name	Description	Launch Date	Countries	iOS Downloads	Android Downloads	Total Downloads
Mindfulness Coach	Resources to help a Veteran practice mindfulness	Jan 31, 2014	75	13,787	n/a	13,787
MOVE! Coach App	A weight self-management app	Nov 18, 2014	43	4,660	n/a	4,660
Moving Forward	Tools to learn problem-solving skills	Jan 31, 2014	47	2,588	n/a	2,588
Parenting2Go	Tools to learn parenting skills	Jan 31, 2014	26	1,292	n/a	1,292
PE Coach	Helps treat PTSD through prolonged exposure therapy	Mar 12, 2012	64	18,693	12,902	31,595
PFA Mobile	Tool for responders providing psychological first aid after a disaster	Aug 29, 2012	60	11,398	1,446	12,844
PTSD Coach	Resource for patients coping with PTSD	Apr 7, 2011	89	115,926	67,859	183,785
Stay Quit Coach	Tools to help Veterans who have quit smoking	May 30, 2013	64	4,620	n/a	4,620

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

### HTML 5 applications (web-based, not downloaded):

HTML5 App Name	Description	Launch Date	Users	Total registered
Airborne Hazards and Open Burn Pit Registry (HTML5)	Online database of health information provided by Veterans and service members about exposures to airborne hazards	April 2014	64,039	41,555
Antibiogram App (HTML5)	Provides VA care team members with antibiotic resistance data	NA	NA	NA
Launchpad (HTML5)	A tool to access all apps that require a secure logon	NA	NA	NA
Mobile Blue Button (HTML5)	Allows Veterans to access, print, and download information from the electronic health record	NA	NA	NA
Scheduling Manager (field test, limited audience) (HTML5)	Allows Veterans to receive and book appointment requests	NA	NA	NA
Summary of Care (HTML5)	Lets Veterans receive and view VA medical information	NA	NA	NA
Veteran Appointment Request (field test, limited audience) (HTML5)	Allows Veterans to request primary care and mental health appointments	NA	NA	NA

Sources: VA, 2015g, and internal VA communication, Office of Connected Health.

Note: NA indicates that the cell is not applicable because the app has not been nationally released.

None of these apps is integrated with electronic health records, though better integration is planned in the future, as noted above. One example is a new app called “MH PRO,” through which mental health patient-reported outcomes from Veterans will be collected and integrated into the electronic health record. One interviewee suggested that this technology could be used in conjunction with telehealth, with Veterans completing a range of home exercises that would

normally be sent on paper via mail or fax, which would help providers obtain immediate feedback.

As a point of comparison, Kaiser Permanente, also a leader in health IT, provides more than 100 Internet, mobile, and video applications that allow patients to make appointments, access their health information, and exchange secure messages with their doctors (Pearl, 2014). However, most health care applications are created by companies, such as electronic health record vendors or other businesses, rather than health care systems, so VA is showing leadership in this effort.

VA mobile apps hold great promise to increase access to care, but due to limited functionality and requirements surrounding their use, there is little evidence that they have done so to date.

### 3.5.4 VistA/CPRS

VistA is VA's IT platform for all patient records and every aspect of VA operations related to clinical care (for example, clinical documentation, inpatient bed management, outpatient scheduling, supply inventory). VistA is developed and implemented locally; there are actually "126 different VistAs," one for each local health care system. While local facilities substantially develop their own modules and other customizations, they widely incorporate some of the approximately 200 separate modules/applications that VA certifies for national use (VA, 2013c).

CPRS is the graphical user interface to the electronic health record and the order entry system, the parts of VistA used by providers and nurses for day-to-day care of patients at their facilities. When released in 1997, CPRS was widely acknowledged to be innovative and the best in its class. Nearly 20 years later, it is still considered by many to have functionality on par with commercially available systems. However, previous reports have noted that little development has occurred over the past 10 years, and that both the underlying architecture and the functionality of the system are in danger of becoming obsolete (Veterans Health Administration Office of Health Information Product Effectiveness, 2012).

In 2012, VA conducted a comprehensive study of end-user perceptions of CPRS to identify its strengths and weaknesses (Veterans Health Administration Office of Health Information Product Effectiveness, 2012). The resulting report summarized the findings of 297 interviews with clinical and administrative personnel. While it made clear that a substantial number of respondents had a "positive impression of VistA and CPRS," particularly compared with their experiences with other electronic health record systems, it also identified a number of shortcomings, several of which might impede timely and accessible care.

One example detailed in the 2012 report was the existence of "shadow" scheduling systems:

The project team heard from many participants who maintain 'shadow' scheduling systems using a myriad of programs. While these shadow systems may present a provider's calendar in an easily viewable format, these systems lack the security of VistA. This also creates the possibility of having multiple, incorrect schedules if the shadow schedule is not updated simultaneously when appointments are changed or cancelled.

. . . Several service areas use secured Microsoft Excel spreadsheets to schedule and track appointments. . . . Clinicians at one VAMC maintain paper records to track multiple providers' schedules across specialty areas.

This finding illustrates the centrality of VistA/CPRS to the provision of timely and accessible care. It might be said that the event that triggered the Veterans Choice Act (and this report) was facilitated by a culture of using unauthorized workarounds to make up for a VistA shortcoming (the lack of flexible and usable scheduling tools).

Other key areas for improvement identified in the 2012 VA report included the following:

- Non-intuitiveness of all but the most basic “paper chart equivalent” features
- Tools to support clinical workflow
- Nursing documentation tools
- Mechanisms for secure communication
- Clinical decision support
- Medication reconciliation at discharge
- Clinical reminders
- Alert fatigue
- Lack of a usable problem list functionality
- Lack of organizational or search functionality in “VistA Imaging”
- Inadequate cross-facility and remote access functionality
- Integration with other systems.

For this report, we interviewed CPRS end-users, IT engineers, and management personnel at local and national levels. Our findings were strongly aligned with those of the 2012 VA report: While nearly all shortcomings described in the previous report were also mentioned by current interviewees, there was also positive sentiment for certain CPRS design elements (for example, substantial use of free text), which were perceived to be “care-centric” rather than “billing-centric.” Many noted that CPRS is rapidly losing ground to more modern IT systems, but few (if anyone) suggested that CPRS should be exchanged for a commercial off-the-shelf alternative. Many gave voice to the importance of an IT system designed for workflows unique to VA and to the needs of Veterans.

Interviewees noted three primary ways in which CPRS usability can negatively affect the provision of timely and accessible care: time burden of physician/CPRS interaction, faulty transmission and assimilation of information, and the lack of a mechanism for ensuring that future care occurs when it should.

### **3.5.4.1 Time Burden of Physician–CPRS Interaction**

Inefficient tasks in CPRS (for example, unnecessary mouse clicks, unnecessary data entry, or unnecessary time spent assimilating information) mean more time spent with the computer and less spent addressing a patient's concerns. One notable theme to emerge from interviews

is that the inefficiencies with the greatest impact are perceived to be a result of policy decisions, rather than deficiencies in CPRS's functionality.

Central office management is strongly perceived as being overzealous in using CPRS to enforce clinical directives, mandate data collection, and measure compliance. The following quotes are representative:

Performance measures have really gotten out of hand...Initially there were 10 clinical reminders that were really clinical and useful. . . . Now there are an excessive number. . . . Many of these exist for the purposes of data collection. Some of the most onerous ones are unrelated to clinical care.

We're cluttering up everything to the point that a provider can't work anymore because there's just too many things that you have to address regarding one patient, much of which has nothing to do with their health.

"Clinical reminders" were singled out as a mechanism by which a series of time-consuming patient interactions (and associated documentation) are mandated and compliance audited. Some estimated that a registered nurse or physician spends an average of 15–30 minutes of each visit responding to reminders. For example, one physician noted that he was required annually to ask any hypertensive patient with a body mass index in the "overweight" range whether the patient would like to enroll in an obesity reduction program ("MOVE"), whether or not the patient appeared obese, and whether or not the patient had previously declined. For diabetic patients, providers are required to document a "monofilament exam" to detect diabetic nerve damage at regular intervals, whether or not the patient was already known to have permanent nerve damage. For patients who say they are depressed (whether or not that is their primary reason for a visit), completion of a "suicide prevention reminder" reportedly can take 30 minutes to an hour. One interviewee said his patient went to the emergency room complaining of chest pain, and because he also indicated that he was depressed, "the nurses wanted to take care of the suicide reminder before doing the [electrocardiogram (EKG)]."

Some interviewees indicated that clinical reminders can sometimes be useful (for example, to trigger colon cancer screening). On the other hand, one reported that clinical reminders are not used for patient care at all at her facility because they are not considered reliable. She reported that providers relied on their own improvised systems to track clinically important information, and that responding to reminders was something done for the sake of managers. The between-system variation in the perceived value of reminders is consistent with reports that implementations of VistA/CPRS vary substantially, as does investment and expertise in tasks such as reminder development (Veteran's Health Administration, Office of Health Information Product Effectiveness, 2010).

### **3.5.4.2 Faulty Transmission and Assimilation of Information**

Ensuring that providers use all relevant clinical information to make therapeutic decisions was highlighted as an important component of care access. For a patient to access appropriate follow-up care after an abnormal laboratory or radiology test, there must be a failure-proof mechanism by which an appropriate clinician in an appropriate timeframe sees and acts on the



results. More generally, it is important that each provider who treats a patient for a given constellation of symptoms has access to all elements of the evaluation (both objective data and subjective opinion) that occurred previously.

Interviewees identified several problem areas in this regard:

- **Clinical reports are “buried” in VistA Imaging.** VistA Imaging was developed as a module to store the image data from diagnostic tests (for example, X-rays, EKG tracings (Kuzmak & Dayhoff, 1998)). It is not part of CPRS although it can be launched via a web interface from CPRS. Increasingly, VistA Imaging has been used to store other clinically relevant information. At many facilities, it is the standard place to store scanned text reports of clinical evaluations or diagnostic tests obtained outside the VA system (VA, 2013c). If, for example, a Veteran is referred outside the system for a colonoscopy or ultrasound examination, the results typically are faxed to VA and stored on VistA Imaging. Because these reports are not indexed or searchable, the results might never be seen by a VA provider or incorporated into clinical care (Veterans Health Administration Office of Health Information Product Effectiveness, 2012). Even if one provider sees the report initially, lack of searchability means that others looking for the same information might overlook it.
- **Important information is obscured in an increasing volume of notes.** There is a perception that the number and length of notes has been increasing, in part due to mandatory documentation that is perceived to be of little clinical value. Copying and pasting old notes was also mentioned as a source of increased “noise” that reduces the visibility of important information. The “Where’s Waldo” problem has been described as an inherent pitfall of electronic health record systems, not just CPRS (Hartzband & Groopman, 2008).
- **“Alert Fatigue.”** Certain abnormal lab or radiology results can trigger automatic alerts to the providers that ordered them or to other personnel. Interviews suggest substantial variation across facilities. For example, at one institution, abnormal fecal occult blood tests are automatically routed to gastroenterology, where administrative personnel ensure that appropriate follow-up action is taken; at others, follow-up is the sole responsibility of the ordering provider. In general, clinicians feel overwhelmed by the number of alerts they receive and fear important ones are overshadowed by unnecessary “administrative alerts” that do not require clinical action.

### 3.5.4.3 Lack of a Mechanism for Ensuring That Future Care Occurs as Planned

Often, some combination of patient demographics, clinical history, symptoms, treatment guidelines, or provider judgment suggests that a particular type of care should occur at a specific time. For example, a radiologist might recommend a new chest X-ray in six months after an abnormality was found, or a clinician might want to repeat a laboratory test or reevaluate a patient’s symptoms at some specific point in time. Several interviewees noted that CPRS lacks a mechanism for ensuring that such follow-up occurs and that, by and large, each provider is left to develop his/her own workarounds, such as using paper notebooks or electronic spreadsheets to track future plans, using the CPRS “problem list” in a way for which it

was not designed, and documenting “planned future care” at the end of each visit note, and then consistently looking for previous notes during future appointments. While these workarounds might be effective to various degrees, they were generally regarded as failure-prone, particularly when a patient follows up with a provider other than the one initially seen.

### **3.5.4.4 Subsection Summary**

VistA/CPRS are integral to the delivery of timely and accessible care to Veterans. Previous studies have identified a number of strengths and weaknesses of the current technology; our findings confirm them and highlight ways in which CPRS can impact access to care. Whereas VistA was once considered the vanguard, an aging architecture and 10 years of limited development has threatened its future viability. However, interviews across the spectrum of VA personnel—from management and IT thought-leaders to CPRS end-users—suggest strong support for renewed investment in a modern home-grown product rather than transitioning to a commercial off-the-shelf alternative. Interviewees expressed belief that many of the shortcomings of VistA/CPRS are also shortcomings of commercial systems.

We have not evaluated new IT initiatives such as VistA Evolution that are currently in the development stage. These are covered in Assessment H.

### **3.5.5 Data Exchange**

As stated above, ensuring that providers are able to view all available clinical information is an important component of access to care. Whether the missing data are located inside or outside VA, the detrimental impact on access is similar. All U.S. health care providers face challenges exchanging information, especially with other institutions. We describe four forms of data exchange relevant to VA: between local VA systems, with DoD, with private-sector providers, and directly with patients.

#### **3.5.5.1 Data Exchange Between Local VA Systems**

Clinical data within each VAMC are stored in a unified medical record and are easily accessible to any facility within that administrative parent, which is similar to other large provider organizations. Data sharing across administrative parents is currently available through the Remote Data Viewer, a more recent application called VistAWeb, and an application currently being rolled out called Joint Legacy Viewer. All these applications allow providers to view data in other VAMCs, but they do not allow providers to do any other operations such as order tests. Our interviews with key informants suggest that they are used frequently by many VA clinicians every week. Clinicians noted limitations with these applications in terms of their ability to integrate seamlessly as part of their workflows, which likely has resulted in lower use than is clinically optimal, while others were unfamiliar with these capabilities altogether. They mentioned that the interface is quite different from that of CPRS for local data, which might be an impediment to some clinicians. Several key informants agreed that data exchange across VISNs works well if a user knows that the data exist (that is, if the user does not think to look for outside records, their existence will not be apparent). One key informant said, “VistAWeb is a hidden gem that people don’t know enough about.”

One key informant acknowledged that provider IT capabilities that allowed for better workflow integration would save clinicians time, but suggested that usage of existing data exchange capabilities was widespread enough that improvements would not result in large benefits to patients, as most clinicians can find the data when they really need them. In contrast, another said a better integrated system would allow Veterans access to better quality and more timely medical advice, especially Veterans who travel frequently. The integration of medication data is more robust. When a clinician prescribes a medication, the Veteran's drug history is checked against all medications prescribed in any VA location.

While private-sector organizations also face similar challenges with data exchange, direct comparisons to VA are difficult due to differences between organizations and lack of data. The science of data exchange usage measurement is still in its infancy.

VA plans to replace its existing data exchange functionality as part of its VistA Evolution rollout. This version is designed to integrate data across all administrative parents. The primary barriers to improving internal data exchange are technical and organizational in nature and are covered in Assessment H.

### **3.5.5.2 Data Exchange with DoD**

Interest in sharing data between VA and DoD is long-standing. Approximately 400,000 TRICARE beneficiaries receive VA care in a given year (calculated by the authors from the 2010 National Survey of Veterans [Westat, 2010]). Some VA and DoD facilities share resources, and if these arrangements expand, the need for VA-DoD data exchange will also increase.

VA clinicians currently can access DoD data for many years through VistAWeb using the same workflow as accessing data from other VA regions. Reports from stakeholders indicate this happens roughly 250,000 times per week. However, the DoD record is often a scanned report, which limits its utility, especially if it is dozens or hundreds of pages long. They also mentioned that retrieving DoD records is feasible but that providers often do not bother because it is not worth the effort. One said, "I have never seen information on the DoD system."

For VistA Evolution, VA plans to make interoperability with DoD systems a priority and to achieve this by December 31, 2016 (VA, 2014g). This involves creating a unified lifetime health record for Veterans and service members that can be accessed by clinicians at any point in time, regardless of where the information is stored. One benefit of this upgrade is the facilitation of care coordination between providers from different facilities, which may increase the quality of and access to care. In addition, the integration and intercommunication between medical devices can result in time savings and fewer errors in Veteran care. Assessment H describes VistA Evolution in greater depth.

### **3.5.5.3 Data Exchange with Private-Sector Providers**

The purpose of the Virtual Lifetime Electronic Record (VLER) project is to facilitate data exchange between VA and the private sector. This kind of data exchange among unaffiliated institutions is known as health information exchange. In development for roughly five years, the project is partnering with 35 external organizations. In 2012 there were 1,764 unique VA

providers who retrieved data from a provider outside VA (Byrne et al., 2014). More recent data supplied by key informants found 800 transactions per week in which a VA provider sought and received data from a private-sector provider.

Key informants familiar with the VLER project identified the following barriers to data exchange between VA and external organizations:

- **Consent:** Federal laws require consents from each patient (Goldstein & Rein, 2010).
- **Technology:** Finding the records can take as much as four minutes.
- **Record matching:** Finding patient records is challenging because of variation in which traits the data partners use to identify patients; VLER has found the most success matching records based on Social Security number, but the number is being used less frequently.

These barriers are consistent with the findings from evaluations of other health information exchanges (Rudin et al., 2014). Studies of other exchanges have emphasized workflow barriers, which may also be a problem with VLER, but we did not speak with end-users so we cannot be certain. Because VLER is being developed for use within VistAWeb, workflow barriers may be less of a concern for VA than for other exchanges. Other barriers related to technical issues are discussed in Assessment H.

Some of the above barriers are being addressed by VA. For example, to confront delays, VLER is experimenting with pre-accessing a patient's records prior to a visit. Other barriers, such as the patient record matching problem, are an issue for all health information exchanges.

It is difficult to evaluate the VLER project based on usage data because of the nascent state of health information exchange usage measures and little evidence of value brought by exchanges. Three recent literature reviews found limited evidence of impact other than in the emergency department and usage on the order of two to 10 percent of visits. By connecting with 35 distinct partners with 15 vendors (for VLER DIRECT) and beginning to share data, VA maybe at the forefront of interorganizational, cross-vendor data exchange. However, as noted in a recent systematic review, relatively few data exchange initiatives have been formally evaluated (Rudin et al., 2014).

### **3.5.5.4 Data Exchange with Veterans Directly**

Veteran access to their own medical record can serve two purposes. The first is that, until more robust data exchange methods are in place, Veterans can carry their own medical record on visits to their providers. The second, which is discussed in Subsection 3.5.2, is that access to a personal record may allow Veterans to keep better track of their health encounters and increase their understanding of their medical conditions.

As stated in Subsection 3.5.2, VA is a leader in providing patients with access to their own health data via the "Blue Button" mechanism, which allows them to download their entire record from MyHealtheVet in a standardized electronic format. Considering that around 70 percent of Veterans access health care through non-VA facilities, tools such as "Blue Button" could help improve the quality and coordination of care (Hynes et al., 2007; Nazi et al., 2014).

Barriers to improved access are the same as those of access to MyHealthVet (see Subsection 3.5.5.2).

### 3.5.6 Care Management

Care management programs attempt to proactively provide care for patients with the goal of improving outcomes and saving costs that can be spent for other purposes, such as expanding access. IT has the potential to be an important component in care management. Care management is an active area of research and development in VA and other organizations. For this reason, we did not attempt to document the complete inventory of IT capabilities that support care management in VA, which includes a wide range of functionalities such as registries, dashboards, and predictive analytics (Wang et al., 2013a). Few such programs have been formally evaluated and it is difficult to assess the capability without such an evaluation.

One program that has been evaluated in VA is the home telehealth program, which was implemented nationally in 2003 to 2004. Published in 2014, a retrospective matched cohort study of 4,999 Veterans found that the costs of patients receiving home telehealth decreased by 4 percent, while the cohort not receiving home telehealth saw a 48-percent increase (Darkins, 2014). The author contrasts VA's program with others, pointing out that VA's program involves a "biopsychosocial model" in which care coordinators give more than technical advice. A 2013 audit of the home telehealth program by the Office of Inspector General questioned whether this capability was used to its greatest potential, pointing out that its recent growth does not include the kinds of patients who would most benefit (VA, Office of Inspector General, 2015d).

### 3.5.7 Overarching Informational Resources Issues

Several themes emerged across the various IT capabilities. These include the existence of organizational barriers, the need for more widely available wireless internet at VA facilities, the tension between information security and accessibility, and the existence of several innovative programs to improve VA's IT capabilities.

### 3.5.7.1 Organizational Barriers

Managers and providers across the VA system commented on the organization's ability to develop, maintain, and deliver IT tools. On one hand, the dynamic nature of these technologies requires an agile development process that is able to quickly iterate and enhance products. Units involved in this process highlight that administrative barriers in the approval process stymie development and that there is generally "too much focus on planning and reporting and not enough on execution."

On the other hand, there is a lack of strategic focus in how management has addressed technology issues on a project-by-project basis, instead of holistic product management. Hence, different lines receive varying levels of attention and budget. These organizational issues, along with others related to communication across units, have an impact on IT strategy and are addressed in greater detail in Assessment H.

### 3.5.7.2 IT Infrastructure: Wireless Internet at VA Facilities

Wireless Internet (wifi) enables use of mobile technology, such as iPads, both for patients and for providers. However, according to the results of our facilities survey, wifi is not widely available at VA medical centers. According to survey respondents, patients and guests can expect blanket wifi everywhere at only 21 percent of VAMCS, and no wireless Internet at all in almost 40 percent. Staff have higher rates of reliable access, but 38 percent of them also have no access at VAMCs. Wifi access is even lower at CBOCs, where 72 percent have none for patients and 64 percent do not have it for staff. Even when there is access, it is often not extensive or reliable. The lack of reliable wifi likely impedes innovation in and use of mobile health applications at VA.

### 3.5.7.3 Security versus Access to Information

As demand for new health IT applications increase, there is a heightened tension between keeping the information secure while at the same time allowing it to be accessible at the appropriate times and places. We found that this tension tends to manifest in the form of how existing security policies are interpreted and implemented.

### 3.5.7.4 Future Improvements

For all the capabilities we investigated, there were plans for improvements. We focused primarily on VA's existing rather than projected capabilities, because it is challenging to accurately project IT capability into the future. In particular, it is difficult to know which IT projects will succeed, as many fail or are delayed, in VA and in the IT industry in general. It is beyond the scope of this work to exhaustively describe VA's innovation program and would be impossible to accurately predict which ones will have the most potential for scaling and the extent to which they will improve timely and accessible care for Veterans. Instead, we briefly mention a few innovative projects under way as illustrative examples.

- **Mobile CPRS:** This capability will allow providers to access the medical record on their mobile device.

- Proxy access into MyHealtheVet: This capability will allow family or friends of Veterans to more easily serve as caregivers by allowing them to log in to the Veteran’s medical record, with permission from the Veteran.
- Annie texting program: The Annie program—named after Lt. Annie G. Fox, the first woman to receive the Purple Heart for combat—is in a pilot stage. It focuses on texting patients with congestive heart failure, diabetes, hypertension, and weight concerns as well as sending appointment reminders. The scope will expand after the pilot is evaluated (Evans, 2014).
- Watson: VA has a new \$16 million contract with IBM Watson, which has been discussed in the media (for example, Ravindranath, 2014) though VA has made little information available to date. One VA interviewee described a plan to use Watson to “find lurking problems in the medical record”; the tool can review medical notes to identify missed problems, and then the clinician can check to see what data contribute to identifying that problem. It also is capable of searching the medical literature. The VA employee posited that, “this could save 3–5 minutes per visit based on better searching for information in the record.”

### 3.5.8 Subsection Summary

Overall, we found that VA is extensively using many health IT capabilities in a variety of ways that support delivery of timely and accessible care to Veterans. Our assessment shows that VA is on par or exceeds other organizations’ capability to use IT in care delivery in many regards.

For example, telehealth—the use of technologies to provide clinical care when distance separates patients and providers—has been a focus for VA for more than a decade, and VA is now recognized as a world leader in this area. Users of MyHealtheVet express satisfaction with the site’s content, functionality, and performance. VA also continues to develop mobile applications (apps)—software that Veterans can download and use from their smartphones to monitor their health.

Among every capability, we found clear barriers to further taking advantage of what IT can offer. Some of these barriers are faced by all health systems, while others are unique to VA. Although telehealth has grown rapidly, its growth has fallen short of VA targets, reaching 11–12 percent of Veterans in 2013 and 2014; key barriers to further use include insufficient space for telehealth, inadequate infrastructure and support, and lack of leadership/provider buy-in. There are also barriers to expanding use of MyHealtheVet, including the administrative burden on users of registering and issues with the technology. Providers also face barriers that decrease their willingness to use the system, including a lack of integration with other clinical data systems. VA mobile apps hold great promise to increase access to care, but due to limited functionality and requirements surrounding their use, there is little evidence that they have done so to date.

Previous studies have identified a number of strengths and weaknesses of the current VistA/CPRS technology; our findings confirm them and highlight ways in which CPRS can impact access to care. Whereas VistA was once considered the vanguard, an aging architecture and 10 years of limited development has threatened its future viability. However, interviews across the

spectrum of VA personnel—from management and IT thought-leaders to CPRS end-users—suggest strong support for renewed investment in a modern home-grown product rather than transitioning to a commercial off-the-shelf alternative. Interviewees expressed belief that many of the shortcomings of VistA/CPRS are also shortcomings of commercial systems.

### 3.6 Section Conclusion

VA operates a unique health care system with broad and deep resources and capabilities. However, VA faces many barriers to using resources in the most effective way that will need to be addressed in order to improve performance for Veterans. Some of these barriers are specific to VA, while some affect the U.S. health care system more broadly:

- **Fiscal resources:** We identified concerns about the data used for VA's budget planning as well as challenges related to budgeting inflexibility resulting from the congressional appropriation processes and challenges related to VA's allocation processes.
- **Workforce and human resources:** VA faces shortages of physicians in some geographic areas and of certain physician specialists more generally. These constraints are influenced by a number of factors, including relatively low salaries, a slow credentialing process, and infrastructure constraints. There are also challenges associated with VA workforce planning and assessment processes, including challenges in selecting methods, identifying external benchmarks, and obtaining complete and accurate data.
- **Physical infrastructure:** Interviewees in leadership or clinical care positions were generally satisfied with VA medical equipment and supplies, but they noted that physical space was in short supply and that it was difficult to update the physical space in older buildings to accommodate new medical technology and equipment.
- **Purchased care:** VA has many outside options for purchasing care, including several programs and various types of payment or contractual arrangements. However, managing these overlapping programs has been a challenge.
- **IT resources:** VA has been and continues to be an innovator and leader in developing IT capabilities, although there is room for improvement in some areas, including issues related to the management and planning of its IT systems. Among every IT capability we studied, we found clear barriers to further taking advantage of what IT can offer, including inadequate infrastructure, lack of facility leadership and provider buy-in, and administrative burden.

In the next section, we examine how VA's resources and capabilities are utilized by assessing Veterans' access to VA care.



## 4 Assessment of Access to VA Care

As discussed in the previous section, VA operates a unique health care system with broad and deep resources and capabilities. However, ensuring Veterans' access to health care depends not just on the level of resources and capabilities available, but on how well VA's health care system addresses Veterans' needs. In this section, we assess Veterans' access to care along the five dimensions described in Section 1: geographic, timely, financial, digital, and cultural. For each dimension, we describe access within the VA system, compare access in VA to non-VA settings when reasonable comparisons are available, describe consequences of access deficiencies, and outline potential opportunities for improvement.

These analyses use many data sources, including Veteran and enrollee locations and demographics, inventories of VA and non-VA medical facilities and infrastructure, U.S. road network data (to estimate distances), performance measures tracked by VA, evidence from peer-reviewed literature, qualitative interviews with VA health care administrators (VISN quality management and medical officers, VAMC associate directors, CBOC directors and site managers) and health care providers (CBOC and VAMC providers, VAMC nurses and paraprofessionals), and online reviews of VA facilities.

A summary of methods used in these analyses is shown in the box.

### Overview of Methods and Data for Access to VA Care

- We conducted a systematic literature review to examine the accessibility of VA care across the five dimensions of access (geographic, timely, financial, digital, cultural) and to identify facilitators and barriers of access.
- We analyzed narrative reviews of VA facilities submitted by users of the online rating website Yelp.
- We conducted additional data analyses specific to each of the dimensions, as described below.

### Geographic

- To assess geographic access, we built a GIS, using Esri's ArcGIS Version 10.2. We analyzed enrollee access to VA medical facilities with different levels of complexity and different capabilities using several different access standards, including a 40-mile straight line distance, 40-mile driving distance, 60-minute driving time, and 60-minute public transit time. In all analyses, we assessed variation in geographic access estimates by VISN.
- We also estimated geographic access to purchased care for enrollees living outside the 40-mile driving distance boundaries around VA medical facilities. We assessed access to non-VA facilities with different levels of complexity and different services as well as non-VA clinicians practicing in 12 clinical specialties.
- Data used in these analyses included the VA Survey of Enrollees, Veterans Affairs Site Tracking System, American Community Survey, Esri v10.2 Business Analyst Extension, VA Planning Systems Support Group Enrollee file, VA Clinical Inventory Facility Profile Report, VA Clinical Inventory Facility Services Report,

and the SK&A Office-Based Physician, Nurse Practitioner, and Physician Assistant Database.

### **Timeliness**

- We analyzed system-level measures of timeliness, including wait times for primary care, mental health care, and specialty care appointments, as well as Veteran reports regarding access to timely care, appointments, and information from the SHEP PCMH survey. For each measure, we conducted descriptive analyses of the performance rates available at the facility level, noting the variation in performance across facilities nationwide. For measures with rates available for more than one year, we created a descriptive time series and classified changes over time as improving, worsening, or remaining the same.
- We also analyzed five years of data (2010–2014) from the Survey of Enrollees to describe attitudes of Veterans related to timely access to VA care. Data used in these analyses included VSSC, VA SHEP PCMH Survey, and VA Survey of Enrollees.

### **Financial**

- To assess financial access, we assessed the cost of VA care, out-of-pocket expenses, and Veterans' perspectives regarding the value of VA care. For these analyses, we used data from the Medical Expenditure Panel Survey and VA Survey of Enrollees.

### **Digital and Cultural**

- Our assessment of digital and cultural access focused, respectively, on Veterans' internet access and Veterans' perspectives regarding the degree to which VA personnel treat them with respect. In measuring digital and cultural access, we used data from the VA Survey of Enrollees.
- For complete details of the methods used to assess access in all of these dimensions, please refer to Section 2 of this report and Appendix A-1.

## **4.1 Geographic Access**

In this report, we have defined geographic access as the ease of traveling to health care providers. For example, how far does a Veteran live from needed health care services? How long does it take to travel to appointments? Is it possible for the Veteran to take public transportation, and if so, how long is spent in transit? As described above, geographic access is one of several types of access. Because the Veterans Choice Act set a standard of 40 miles maximum distance from VA medical facilities, geographic access is an important dimension for our assessment of VA health care.

### **4.1.1 Effects of Geographic Factors on Enrollment in VA, Use of VA Health Care Services, and Health Outcomes**

Travel time to VA facilities and availability of transportation affect enrollment in VA, reliance on VA, and use of certain health care services. Although Veterans may face similar challenges in traveling to care regardless of whether the care is provided by VA or private-sector providers (Wakefield et al., 2007), VA health care providers we interviewed noted that a long distance from a facility or concerns about transportation to the nearest facility may lead Veterans to seek alternative sources of health care. Studies of female, Medicare-eligible, and rural Veterans support this view, finding that these Veterans are less likely to seek or continue to seek care from VA if they live farther away from VA facilities (Petersen et al., 2010; Buzza et al., 2011; Liu et al., 2011; Hamilton et al., 2013; Nayar et al., 2013; Friedman et al., 2015). Similarly, Veterans who are eligible for both VA care and Medicare are more likely to rely on Medicare than VA if they live in rural areas or metro-adjacent areas, or live more than 50 miles from a VA facility (Hynes et al., 2007; Kramer et al., 2011; Shen et al., 2005; Weeks et al., 2005). Veterans who live farther from VA facilities have been shown to be less likely to visit a VA pharmacy for prescriptions, receive a transplant, have radiation treatment, or use radiology or laboratory services at a VA facility than Veterans who live inside VA service areas or in urban areas (Weeks & West, 2007; French et al., 2012; Patterson et al., 2014).

In interviews, VA health care workers concurred with findings of prior studies reporting that although coordination and continuity of care within VA are generally good, challenges are faced by those who live far away (McCarthy et al., 2007; Skolarus et al., 2013). One study of Veterans with serious mental illness found that those who lived farther from VA had fewer visit days, but more visits per day, suggesting that Veterans who live farther away are more likely to “chain” appointments by scheduling more than one in a single day (McCarthy et al., 2006).

Veterans who live farther from health care facilities also face a greater likelihood of adverse health outcomes. For example, greater distance from a VA or other transplant center has been shown to be associated with lower likelihood of being waitlisted for a liver transplant and receiving a liver transplant, and greater likelihood of death among Veterans who are eligible for liver transplantation (Goldberg et al., 2014). Another study found that distance from a VA facility was significantly associated with PTSD symptom presentation. In particular, female Iraq and Afghanistan Veterans living 11 to 25 miles from the closest VA facility were twice as likely as Veterans located 0 to 10 miles from the nearest facility to belong to intermediate and high-symptom PTSD latent classes (Hebenstreit, Madden, & Maguen, 2014).<sup>42</sup>

Although distance and transportation are the dominant factors determining Veterans’ geographic access to VA care, availability of convenient parking may also affect Veterans’ use of VA facilities. Insufficient parking was among the top 10 most common themes described in the

---

<sup>42</sup> The authors suggest that further research is needed to examine whether Veterans with higher-intensity PTSD live in rural regions because their acuity demands it, or whether distance from treatment elevates disease acuity.

online rating website Yelp reviews about VA facilities; of 1,547 comments posted to Yelp about VA facilities between 2007 and 2015, 6 percent mentioned parking, with twice as many comments noting inadequate parking than adequate parking.

### **4.1.2 Alternative Standards for Geographic Access to Care**

The Veterans Choice Act defines geographic access to care using a standard of a maximum distance of 40 miles between a Veteran's residence and any VA medical facility. Veterans living within 40 miles of a medical facility are considered to have adequate geographic access to care. Those living beyond this distance are eligible for the Veterans Choice Program, which provides Veterans with an opportunity to seek purchased care located closer to their homes. This standard was initially measured by VA along a straight line between residence and facility, but was reinterpreted in March 2015 as driving distance measured along roadways (Hicks, 2015).

The recent change in this rule illustrates that the standard for geographic access can make a difference in who qualifies for the Veterans Choice Program. In this subsection, we examine alternative standards for geographic access to care, including 40-mile straight-line and driving distances, among others.

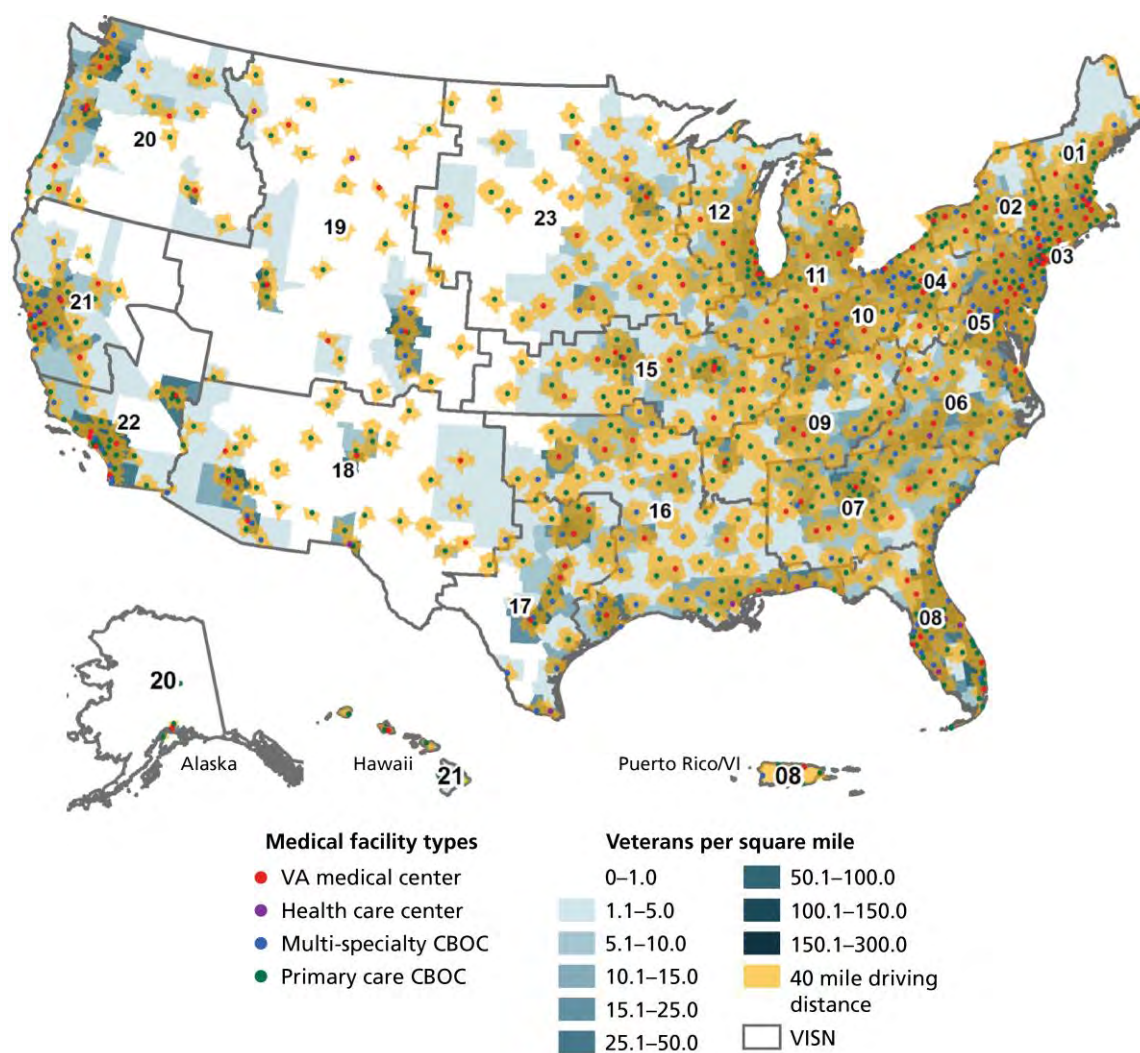
#### **4.1.2.1 The 40-mile Driving Distance Standard**

Figure 4-1 shows the geographic distribution of VA medical facilities (VAMCs, health care centers, multispecialty CBOCs, and primary care CBOCs) surrounded by 40-mile driving distances for enrollees.<sup>43</sup> VA medical facilities of different types are shown as colored dots. Concentrations of enrollees are shown in blue-gray areas, with darker shades representing places where more enrollees live. The 40-mile areas around VA medical facilities are depicted with yellow-shaded polygons. Figure 4-1 shows that 40-mile driving distances surrounding VA facilities reach the vast majority (92.7 percent) of VA enrollees.

---

<sup>43</sup> Figure 4-1 shows enrollees' geographic access to VA medical facilities, while Figure 3.3-1 showed VA medical facilities and population density of all Veterans (including enrollees and non-enrollees).

Figure 4-1. Enrollees' Geographic Access to VA Medical Facilities: 40-Mile Driving Distance



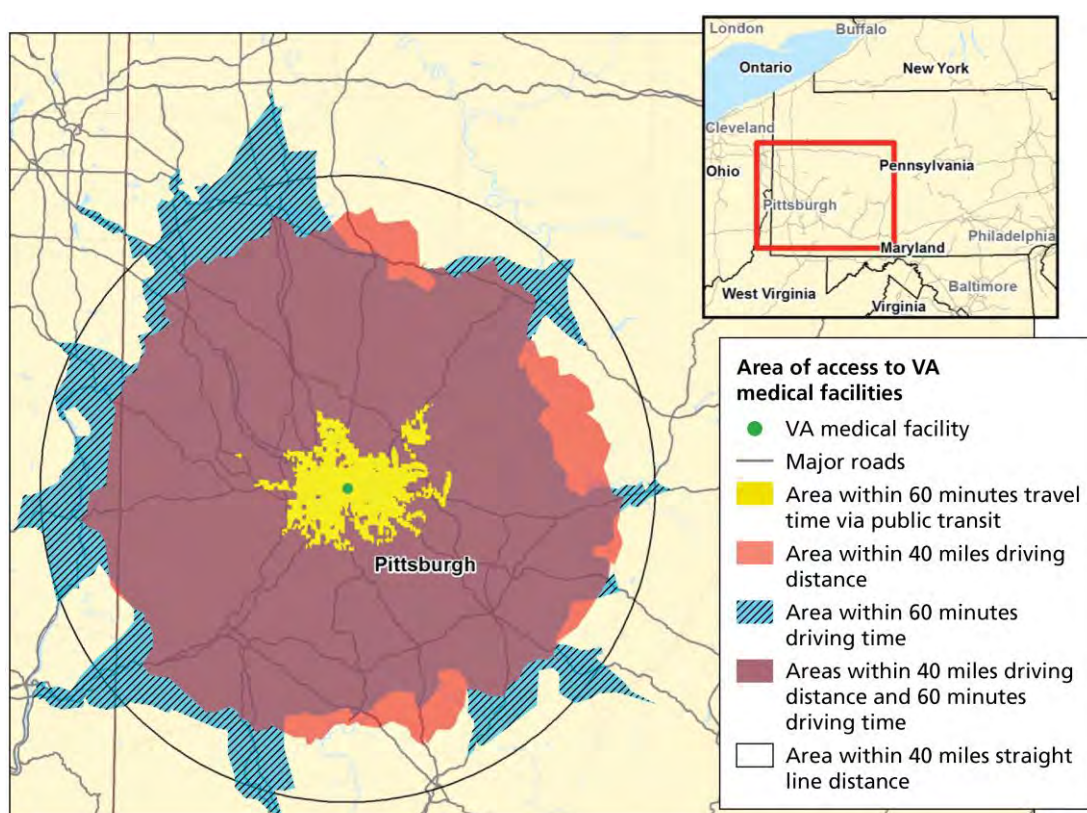
Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

#### 4.1.2.2 Other Geographic Access Standards

A limitation of this distance standard is that it does not account for differences in travel speed in urban versus rural areas or in private versus public transportation. Enrollees traveling in rural areas and by private vehicle may cover 40 miles much more quickly than those in urban areas or by public transportation. An alternative approach accounts for travel *time* instead of *distance*, a standard used widely in studies of geographic access to care (Branas et al., 2005; Klein et al., 2009; Concannon et al., 2010; Concannon et al., 2011; Concannon et al., 2013; Barbash et al., 2014). Travel time can further be considered for people with access to a car and for people using public transportation. Figures 4-2 and 4-3 show how four standards of geographic access overlap in Pittsburgh, Pennsylvania, and Southern California, respectively.

The 40-mile straight-line distance standard is depicted as a gray circle around the VA medical facility. The 40-mile driving distance standard is shown in red. The 60-minute driving time is shown in blue; areas of overlap between this standard and the 40-mile driving distance standard are shown in purple. The 60-minute public transportation time standard is shown in yellow.

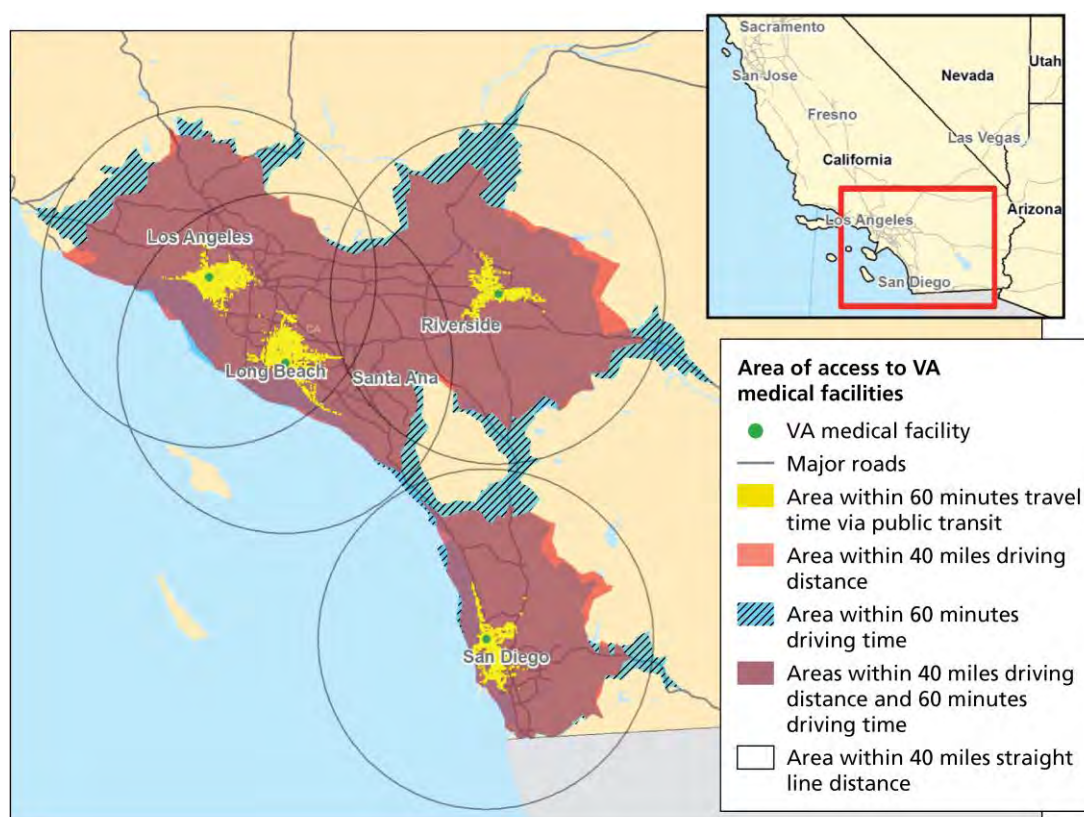
**Figure 4-2. Four Geographic Access Standards in Pittsburgh**



Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.



Figure 4-3. Four Geographic Access Standards in Southern California



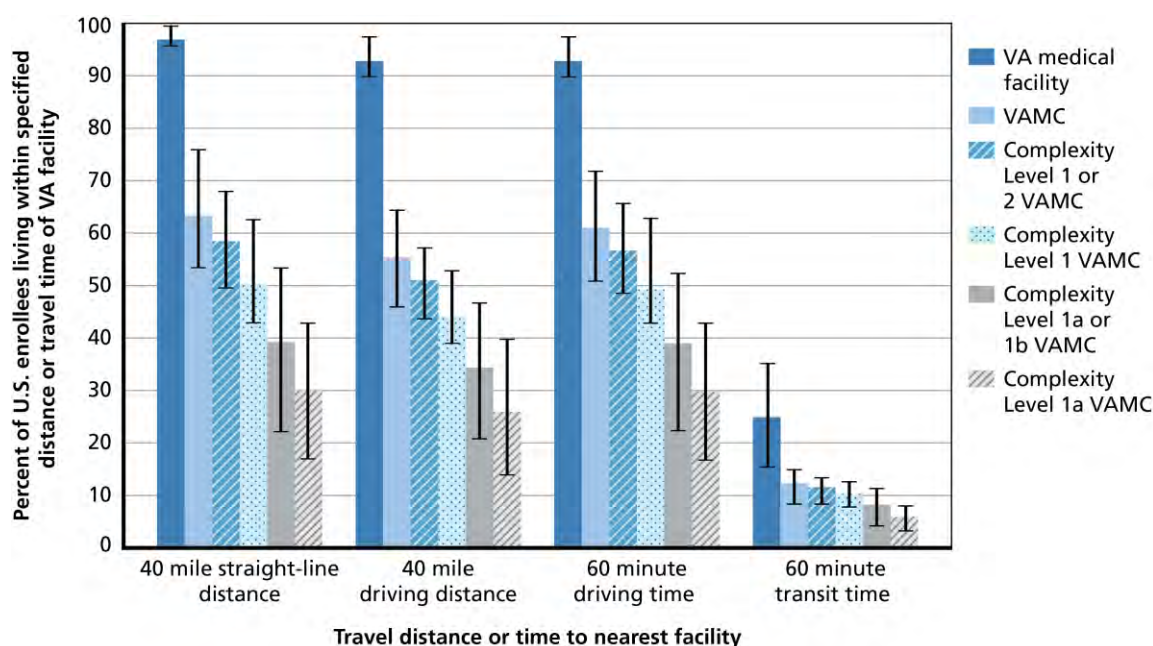
Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

These maps show that 40-mile and 60-minute driving areas are comparable in Pittsburgh, while the 60-minute driving time area—without accounting for traffic slowdowns—covers more ground in Southern California. The 60-minute public transportation areas are much smaller, illustrating challenges associated with accessing VA services without a car.

### 4.1.3 Enrollees' Geographic Access to VA Care

Figure 4-4 shows how the four standards of geographic access would affect the estimated proportion of enrollees who have geographic access to different levels of complexity at VA medical facilities. The standards for geographic access—40-mile straight-line distance, 40-mile driving distance, 60-minute driving time (in free-flow traffic), and 60-minute public transit time—are arrayed in four groups along the x-axis. Within each group, geographic access to VA medical facilities is presented in six bars representing access to facilities with different levels of complexity.

Figure 4-4. Geographic Access to VA Facilities, by Type of Facility and Standard



Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

Notes: Vertical bars represent national estimates. Black lines on the bars represent the interquartile range of values across 21 VISNs.

#### 4.1.3.1 Enrollees' Geographic Access to Any VA Medical Facility

Overall, the first three standards do not differ a great deal in their summary effects on estimates of geographic access to any VA medical facility (Figure 4-4). The left-most bar in each group presents the proportion of enrollees that have geographic access to any VA medical facility (N = 871). The 40-mile straight-line distance standard results in an estimate of 96.8 percent of enrollees (N = 8,367,877) having access while the 40-mile driving distance results in an estimate of 92.7 percent and a 60-minute driving time standard results in an estimate of 92.8 percent.

By changing the standard from straight line to driving distance, therefore, we estimate that VA more than doubled the number of enrollees meeting geographic access criteria for eligibility for the Veterans Choice Program, from 3.2 percent (N = 289,516) to 7.3 percent (N = 658,890) of enrollees.

If enrollees rely on public transportation, they face a significant barrier to access. Only 24.9 percent of all enrollees live within a 60-minute transit time from any VA medical facility (Figure 4-4). There is substantial variation across VISNs in the percentage of Veterans within 60-minute transit time to a VAMC or CBOC (interquartile range, 15.3 percent to 35.2 percent; range, 9.3 percent to 60.1 percent). The Veterans Transportation Service does not currently collect information on the number of enrollees who use public transportation to get to and from



medical care. This may be useful information to collect in future planning for supplemental transportation services.

#### 4.1.3.2 Enrollees' Geographic Access to Higher-Complexity VA Medical Facilities

Geographic access to higher-complexity VA medical facilities is considerably lower than the estimates of access to any facility. The five right-most bars in each grouping in Figure 4-4 show how geographic access estimates fall with each increasing level of medical facility complexity. For geographic access to care provided at VAMCs, the percentage of enrollees residing less than 40 miles driving distance away drops from 92.7 to 55.3 percent of enrollees. Fewer enrollees have access to higher-complexity facilities: 50.9 percent live within 40 miles of complexity level 1 or 2 facilities, 44.0 percent have access to complexity level 1 facilities, 34.3 percent have access to complexity level 1a or 1b facilities, and 26.0 percent have access to complexity level 1a facilities.

Our estimates of average driving distances to VA medical facilities with different levels of complexity also show that geographic access is more difficult as complexity levels increase (Table 4-1). The average driving distance to any VA medical facility is 15.4 miles for all enrollees (standard deviation = 15.7 miles). This distance increases to 41.4 miles (standard deviation = 39.0 miles) when driving to a VAMC, 44.8 miles (standard deviation = 42.7 miles) to a level 1 or 2 VAMC, 52.9 miles (standard deviation = 50.7 miles) to a level 1 VAMC, and 80.9 miles (standard deviation = 65.1 miles) to a level 1a VAMC.

**Table 4-1. Mean (Standard Deviation) Driving Distance to Closest VA Medical Facility (in miles), by Type of Facility**

Type of VA Medical Facility	All Enrollees	Enrollees Residing >40 Miles from Nearest VA Medical Facility	Enrollees Residing <40 Miles from Nearest VA Medical Facility
Any VA Medical Facility (N = 871)	15.4 (15.7)	57.9 (21.2)	12.2 (9.3)
Any VAMC (N = 163)	41.4 (39.0)	91.7 (38.6)	16.5 (10.5)
Complexity Level 1 or 2 VAMC (N = 129)	44.8 (42.7)	97.6 (42.2)	16.6 (10.6)
Complexity Level 1 VAMC (N = 97)	52.9 (50.7)	109.3 (46.9)	16.6 (10.5)

Type of VA Medical Facility	All Enrollees	Enrollees Residing >40 Miles from Nearest VA Medical Facility	Enrollees Residing <40 Miles from Nearest VA Medical Facility
Complexity Level 1a or 1b VAMC (N = 64)	66.0 (60.5)	122.2 (50.8)	17.0 (10.4)
Complexity Level 1a VAMC (N = 47)	80.9 (65.1)	128.1 (50.7)	17.4 (10.5)

Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

Notes: Facility counts changed over the study period as a result of site reclassifications. The numbers in this report come from an April 2015 extract from Veterans Affairs Site Tracking System that followed a major VA site reclassification in March of 2015.

#### 4.1.3.3 Enrollees' Geographic Access During Rush Hour Traffic

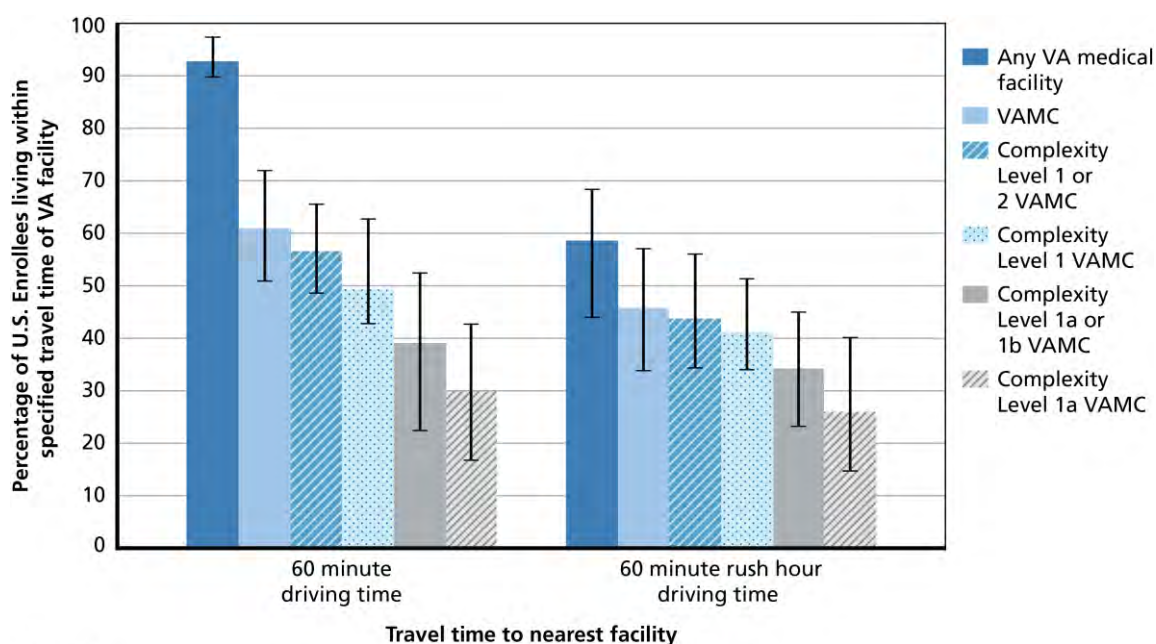
Driving time standards account for geographic features like road networks, elevation, geographic barriers, and area differences in travel speeds. A limitation of these standards, however, is that they typically do not account for traffic slowdowns. We use the 2012 Urban Mobility Report<sup>44</sup> (Schrank, Eisele, & Lomax, 2012) to adjust for slowdowns during typical peak rush hour (6 to 10 AM and 3 to 7 PM) travel. For example, a travel time index of 1.30 indicates a 20-minute trip at free-flow speeds takes 26 minutes (30 percent longer) during rush hour periods.

Figure 4-5 compares driving times to VA medical facilities in normal free-flow traffic and rush hour traffic in the 101 metropolitan areas with travel time index values available. The percentage of enrollees within 60 minutes driving time of any medical facility drops from 93.9 percent in free-flow travel to 82.3 percent in peak traffic.<sup>45</sup> Similarly, the percentage of enrollees with 60-minute driving time access to facilities with different complexity levels declines by four to eight percentage points in rush hour traffic compared with free-flow traffic.

<sup>44</sup> We obtained the travel time index for 101 metropolitan areas. Travel time indices for other metropolitan regions were not available

<sup>45</sup> Because this analysis was conducted in the subset of 101 metropolitan regions in which the travel time index values were available, this estimate is slightly different than the 60-minute driving time estimate across the United States.

**Figure 4-5. Geographic Access to VA Facilities During Rush Hour Traffic, by Standard**



MS4675B-4.5

Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

Notes: Vertical bars represent national estimates. Black lines on the bars represent the interquartile range of values across 21 VISNs.

#### 4.1.3.4 Enrollees' Geographic Access to Specific Types of VA Care

The Veterans Choice Program eligibility standards are measures of access to any medical facility; they do not account for whether needed services are available at that facility. We measured geographic access to 27 services (Table 2-7) that may be needed in the care of one or more of seven illustrative clinical populations. We mapped variables from VA's clinical inventory profile and services to these 27 services; the mapping and variables are shown in Appendix Table F-10. To examine how geographic access estimates change when one of these services is needed, we estimated the percentage of enrollees at the VISN and national levels with access to each one of these services (Table 4-2). Estimates of geographic access among Veterans and enrollees using both the 40-mile driving distance and 60-minute driving time standards are presented for all 27 services in Appendix F.

**Table 4-2. Enrollees' Geographic Access to VA Clinical Population-Specific Services**

<b>Services (by Clinical Population)</b>	<b>Percentage of Enrollees Living within 40 Mile Driving Distance of a VA Facility with the Service</b>	<b>Enrollees' Mean (Standard Deviation) Driving Distance to the Nearest VA Facility with the Service (in miles)</b>
<b>Acute Coronary Syndromes</b>		
Non-invasive cardiology services	58.3	39.3 (37.7)
Emergency department	50.2	45.9 (42.3)
Coronary care unit	50.1	46.0 (42.4)
Interventional cardiology	43.4	53.4 (48.7)
Telemetry (if CCU/ICU is not available)	35.2	63.5 (55.7)
Diagnostic cardiac catheterization	42.0	54.2 (49.9)
Cardiac surgery	39.7	58.3 (51.2)
<b>Colon Cancer</b>		
Primary care clinic	91.8	15.8 (16.1)
Computerized tomography scan	60.0	38.3 (36.6)
Oncology services	55.3	42.1 (41.1)
Colonoscopy	58.0	40.0 (38.8)
Surgical services	54.3	42.4 (39.8)
<b>TBI</b>		
Specialty care	62.0	36.6 (36.8)
Polytrauma support clinic team	36.9	59.7 (50.0)
Polytrauma network site	20.8	86.8 (66.8)
Polytrauma Rehabilitation Center (Program)	4.4	118.2 (70.3)
<b>Type II Diabetes Mellitus</b>		
Primary care clinic	91.8	15.8 (16.1)
Diabetes specialty or endocrinology clinic	72.2	29.8 (32.7)
Podiatry clinic	70.3	30.7 (33.2)
Ophthalmology clinic	53.8	43.9 (41.0)
<b>PTSD</b>		
Mental health services	90.4	16.4 (17.3)

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

<b>Services (by Clinical Population)</b>	<b>Percentage of Enrollees Living within 40 Mile Driving Distance of a VA Facility with the Service</b>	<b>Enrollees' Mean (Standard Deviation) Driving Distance to the Nearest VA Facility with the Service (in miles)</b>
Psychotherapy	84.7	20.3 (22.2)
Domiciliary Residential Rehabilitative Treatment Program	17.5	88.0 (57.7)
<b>SUD</b>		
Mental health services	90.4	16.4 (17.3)
Outpatient specialty care	81.8	22.5 (23.5)
Methadone	68.9	32.5 (35.3)
Inpatient detoxification	52.4	44.2 (40.7)
Residential treatment	29.2	73.9 (58.7)
<b>Conditions Requiring Gynecological Surgery</b>		
Gynecological surgery services	48.4	46.8 (43.9)

Sources: Authors' analysis of Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

Note: The percentage of enrollees with access to telemetry is based on only those facilities without CCU/ICU services.

Almost 92 percent of all enrollees have geographic access to primary care services, critical for screening and diagnosis of populations needing advanced specialty care. However, substantially lower proportions of enrollees have geographic access to advanced and specialized services in VA facilities. Between 35 percent and 58 percent of enrollees have access to specialized services for acute coronary syndromes (Table 4-2). Similar figures for other specialized services are between 54 and 60 percent for specialized colon cancer care, and between 54 and 72 percent for specialized diabetes care.

Though some conditions are found much more commonly in Veterans than in other populations, geographic access to care for these conditions is often at or below 50 percent. Residential services for PTSD and SUD are accessible to 18 percent and 29 percent of enrollees, respectively (Table 4-2). Patients with active SUD have 52.4 percent access to inpatient detoxification services. Only 4.4 percent of enrollees have geographic access to a polytrauma rehabilitation center for TBI under this standard, while 20.8 and 36.9 percent have geographic access to a VA polytrauma network site and a VA polytrauma clinic team, respectively. While the nature of residential services means that the actual distance from home is less important than for outpatient or short inpatient care, it also means that Veterans living at more distant facilities may be far away from family or other support networks.

Specialized services for women's health are a growing need for VA; 48.4 percent of enrollees have geographic access to this type of care.

### 4.1.3.5 Variation Among VISNs in Enrollees' Geographic Access

The estimates in Figures 4-4 and 4-5 are national estimates of geographic access to VA medical facilities. These estimates vary across VISNs. The black bars in both figures represent the interquartile range<sup>46</sup> of geographic access estimates across VISNs. The percentage of Veterans meeting the 40-mile driving distance and 60-minute driving time standards does not vary widely across VISNs from the 25th to 75th percentile of the distribution.

However, some VISNs are outliers in terms of geographic access. Analysis of geographic access in VISNs below the 25th percentile and above the 75th percentile shows that outlier VISNs have substantially different levels of geographic access. For the five VISNs ranked below the 25th percentile, geographic access using the 40-mile driving standard is between 5 and 26 absolute percentage points below the national average. For the five VISNs ranked above the 75th percentile, estimates are between 5 and 42 absolute percentage points above the national average (data not shown). Those with the lowest rates of geographic access are more likely to be located in rural areas, particularly the Midwest and Northwest regions (data not shown). Those with the highest rates of geographic access are more likely to be located in urban areas, particularly the Mid-Atlantic and Northeast regions.

### 4.1.3.6 Benchmarks for Geographic Access Standards

Setting a geographic access standard is a *de facto* normative judgment about how far or how long Veterans should be willing or able to travel for medical care. The Veterans Choice Act defines geographic access as care that is available within a 40-mile driving distance of a Veteran's residence. In this subsection, we compare this standard with benchmarks outside and inside the VA system.

We examined two benchmarks for comparison with VA geographic access standards (Figure 4-6). First, we examined actual driving times between home and the hospital for fee-for-service Medicare beneficiaries using inpatient hospital care.<sup>47</sup> Fee-for-service Medicare is an open provider network, with almost all U.S. non-VA health care providers participating in Medicare and accepting Medicare patients. Therefore, the distance traveled to hospitals by Medicare

---

<sup>46</sup> The interquartile range is estimated by ordering VISN-level estimates from lowest to highest and reporting estimates at the 25th and 75th percentiles. Because there are 21 VISNs, the interquartile range presents a summary of the 11 VISNs that are inclusive of positions 6 and 16 in this ordering. The five VISNs with the lowest estimates of access fall below the interquartile range and the five VISNs with the highest estimates of access rise above the range.

<sup>47</sup> To compute observed travel distances in the Medicare population, we estimated driving times from all Medicare hospital addresses to the centroids of ZIP codes where beneficiaries were discharged from inpatient care. We then computed an average of driving times for all discharged beneficiaries in a ZIP code and estimated weighted-average driving times for all beneficiaries in a VISN. Weights were constructed as the number of cases in the ZIP code over all cases in the VISN.

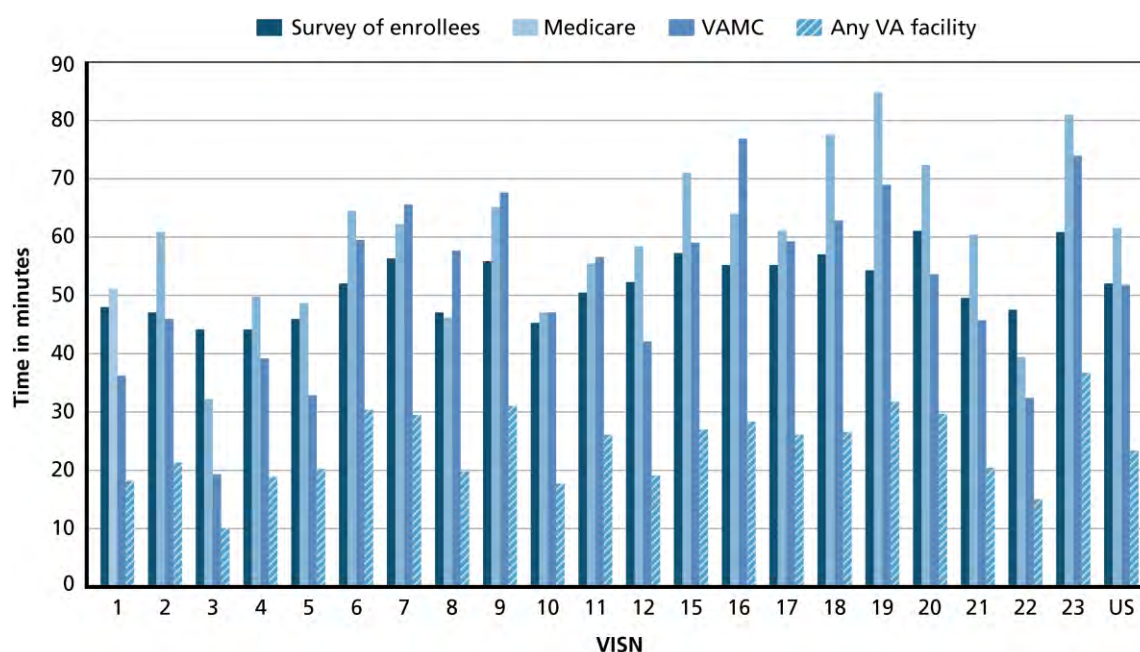
beneficiaries reflects the distance that people travel for care in the absence of provider network constraints. Second, we examined stated willingness to travel among Veterans responding to the 2013 Survey of Enrollees. Both benchmarks are measured in terms of time, not distance.

Observed travel times for Medicare beneficiaries varied significantly across VISNs, signaling that a uniform standard across the U.S. may not reflect local practices and expectations. The average estimated travel time across the U.S. among Medicare fee-for-service beneficiaries was 61 minutes. Estimates ranged from an average of 32 minutes in the VISN with the shortest observed times to 85 minutes in the VISN with the longest observed times (Figure 4-6).

Results from the 2013 Survey of Enrollees show an average willingness to travel of just over 50 minutes for medical care. This is lower than the 60-minute alternative standard. The data also show narrower variation from place to place, from a low of 44 minutes in one VISN to a high of 61 minutes in another (Figure 4-6).

In comparison, VA enrollees live an average of 52 minutes driving time from the nearest VAMC and 23 minutes driving time from the nearest VA medical facility of any type (Figure 4-6). On average and in most VISNs, these driving times are less than enrollees' reported willingness to travel and Medicare beneficiaries' average observed travel times.

**Figure 4-6. Driving Time to Hospitals for Medicare Beneficiaries and VA Enrollee Willingness to Travel**



Sources: Authors' analysis of Medicare Hospital Service Area File (2015); VA Survey of Enrollees (2013); and Veterans Affairs Site Tracking System and VA Planning Systems Support Group Enrollee file from second quarter 2015.

Notes: "US" refers to a national estimate for all VISNs. We used travel time from Medicare data



to have a direct comparison with the measure of willingness to travel in the Survey of Enrollees. We cut off Medicare estimates of travel above 240 minutes by road networks, assuming that longer travel distances were likely to be made by air. City hubs associated with each VISN are listed in Table 3.1-3.

Our analyses of data from VA's Survey of Enrollees suggest that ease of traveling to care at VA facilities and availability of a VA provider in Veterans' areas may be declining over time. In 2010, almost 80 percent of Veterans responding to the survey agreed it was easy to get to their local VA facility; by 2014, 75 percent of Veterans responding to the survey reported the same. Similarly, the proportion of Veterans who agreed that there was a VA provider in their area that offered the health care services that they need declined from 72 percent in 2010 to 66 percent in 2014. A similar decrease over the same period was reported in the proportion of Veterans who reported that it was easy for Veterans like them to get around in a VA facility.

Significant decreases in the Survey of Enrollees' agreement responses over time have occurred each year from 2010 to 2014. Multivariate models controlling for time trends indicate that decreases are partly attributable to the increasing proportion of Veterans who are younger and female, as these Veterans are less likely to agree that it is easy to get to their local VA facility and that there is a VA provider in their area that offers the services they need. Veteran reports that geographic access to VA care is worsening may also reflect migration of Veterans to regions, such as the south, where VA services are less available, and actual increases in distance to VA facilities due to reorganization and closures.

Our analyses suggest that a uniform driving distance standard may inadequately reflect the needs and expectations of Veterans in different regions of the country. Because this may be the case, a single driving distance standard may prove to be overly restrictive in some areas while placing no real restrictions on eligibility for the Veterans Choice Program in others. In contrast, driving time standards can take into account the usual variation in travel speeds by urban versus rural areas, by private versus public transit, and by free-flow versus peak travel periods. Driving time standards have the added benefit of being adjustable for community-specific experiences and expectations about how long an enrollee should be in transit to and from medical appointments.

Further, adjustments in the standard for populations requiring access to specific types of care seem critical. Enrollees needing access to more complex medical facilities and to specialized services may need to travel farther than 40 miles to gain access. The most extreme example of this is for enrollees seeking rehabilitation services for TBI. Only 4.4 percent of all enrollees live within 40 miles of VA's five polytrauma rehabilitation centers. It would make little sense for VA to expand this program to every VA medical facility; Veterans needing this care are more than likely to seek it from VA and travel great distances to get it. Less extreme examples also illustrate this case. For instance, Veterans seeking access to interventional cardiology may be willing to travel greater distances for this service and VA might consider whether longer distances for this service would be reasonable.



## 4.1.4 Geographic Access to Non-VA Facilities

### 4.1.4.1 Characteristics of Enrollees Living More Than 40 Miles from a VA Medical Facility

As shown in Subsection 4.1.3, 7.3 percent (N = 658,890) of enrollees live more than 40 miles driving distance from any VA medical facility. In terms of age, gender, priority group, and prevalence of selected conditions, these populations are quite similar to their counterparts who live closer to VA medical facilities (Tables 4-3 and 4-4).<sup>48</sup>

**Table 4-3. Demographic and Service Characteristics of Enrollees Living Inside and Outside 40-mile Driving Distances from VA Medical Facilities**

	No. (%) Living <40 Miles from a VA Facility (N = 8,367,877)	No. (%) Living >40 Miles from a VA Facility (N = 658,890)
<b>Age and Gender</b>		
Age under 35	858,625 (10)	48,364 (7)
Age 35–44	771,827 (9)	42,931 (7)
Age 45–54	1,094,119 (13)	64,431 (10)
Age 55–64	1,567,668 (19)	122,199 (19)
Age 65 and older	4,079,453 (49)	381,195 (58)
Female	629,593 (8)	33,602 (5)
<b>Service Characteristics</b>		
Priority group 1	1,743,412 (21)	136,748 (21)
Priority group 2	673,452 (8)	48,827 (7)
Priority group 3	1,133,392 (14)	87,508 (13)
Priority group 4	226,290 (3)	16,038 (2)
Priority group 5	1,894,864 (23)	160,762 (24)
Priority group 6	547,878 (7)	43,214 (7)
Priority group 7	402,507 (5)	17,525 (3)
Priority group 8	1,749,963 (21)	148,498 (23)
Service-Connected Disability	3,790,366 (45)	290,003 (44)

<sup>48</sup> Because this comparison is drawn from complete data on a large population and not from sampling data, significance testing is non-informative and over-powered, and therefore, was not performed.

## Assessment B (Health Care Capabilities)

Any purchased care utilization	1,031,335 (12)	113,249 (17)
--------------------------------	----------------	--------------

Source: Authors' analysis of Planning Systems Support Group Enrollee File.

Note: Total enrollees = 9,026,767.

**Table 4-4. Clinical Characteristics of Enrollees Living Inside and Outside 40-mile Driving Distances from VA Medical Facilities**

Clinical Conditions	No. (%) <40 Miles from a VA Facility	No. (%) >40 Miles from a VA Facility
Acute coronary syndromes, emergency care	24,253 (0.3)	2,300 (0.4)
Colon cancer, primary care	27,657 (0.3)	2,515 (0.4)
TBI, specialty care	96,044 (1.1)	6,265 (1.0)
Diabetes, primary care	1,012,664 (12.1)	88,925 (13.5)
PTSD, mental health services	532,363 (6.4)	41,409 (6.3)
Substance abuse, outpatient specialty care for SUD	347,987 (4.2)	19,996 (3.0)
Women's health, gynecological surgery services	22,289 (0.3)	1,140 (0.2)

Sources: Authors' analysis of Planning Systems Support Group Enrollee File and VA Encounter data.

Notes: Information on conditions was only available on Enrollees who are users of health care. Number of VA patients = 5,799,131.

Younger and female enrollees are more likely to live within 40 miles from a VA medical facility, while older enrollees are more likely to live beyond 40 miles (Table 4-3). The distribution of enrollees by priority group was similar for enrollees living less than compared with more than 40 miles from a VA medical facility. A higher proportion of enrollees living more than 40 miles from a VA medical facility used purchased care (17 percent compared with 12 percent of enrollees living less than 40 miles from a VA medical facility).

Comparing the percentage of enrollees diagnosed with the clinical conditions, the difference between enrollees living less than 40 miles versus more than 40 miles from a VA medical facility is less than 0.5 percent, except for diabetes, in which a slightly greater proportion of enrollees lives more than 40 miles away (13.5 percent versus 12.1 percent), and substance abuse, in which a slightly lower proportion lives more than 40 miles away (3 percent versus 4.2 percent) (Table 4-4).

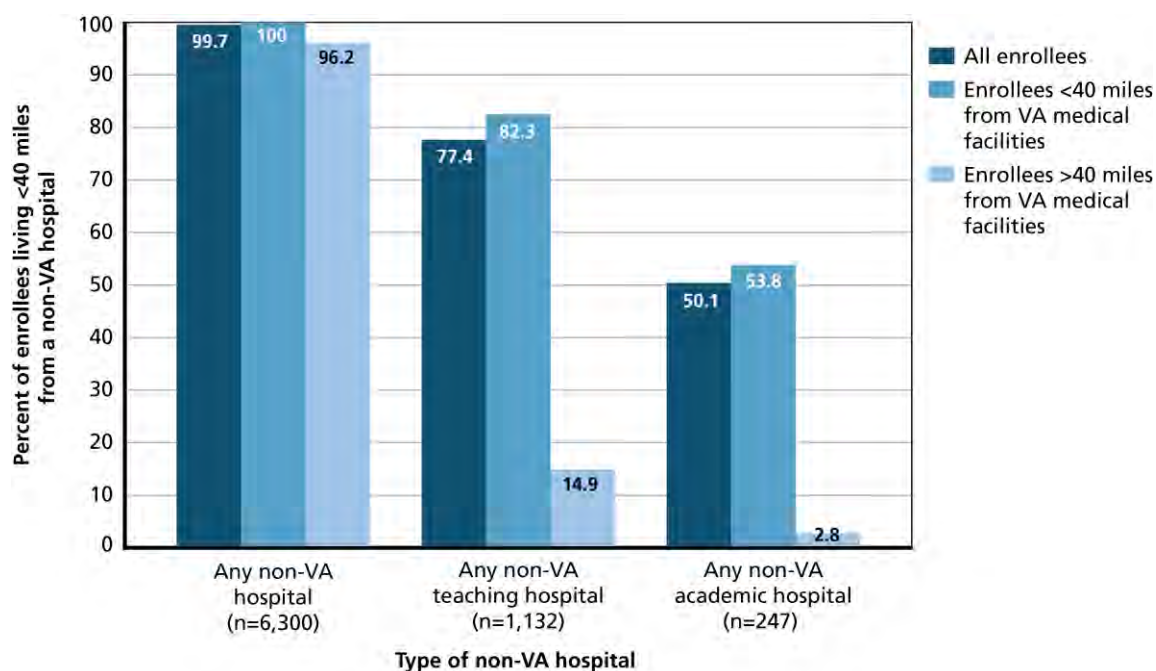
### 4.1.4.2 Enrollees' Geographic Access to Non-VA Hospitals

Many Veterans have other health insurance coverage and use non-VA health care facilities as well as VA health care facilities. The Veterans Choice Program aims to increase access to non-VA facilities for Veterans without geographic or timely access to VA facilities. Figure 4-7 shows

the percentage of Veterans with access to three types of non-VA hospitals: (1) any hospital, (2) teaching hospitals (those with residency programs), and (3) academic hospitals (a subset of teaching hospitals that have a medical school affiliation). Teaching and academic hospitals are shown because they typically have advanced capabilities similar to higher-complexity VA medical facilities.

Most enrollees who live more than 40 miles from VA facilities live within 40 miles of a non-VA hospital (96.2 percent). However, access to non-VA academic and teaching hospitals is much more limited for enrollees who do not have geographic access to VA care (Figure 4-7). Of enrollees living more than 40 miles from VA facilities, 14.9 percent live within 40 miles of a non-VA teaching hospital and 2.8 percent live within 40 miles of a non-VA academic hospital.

**Figure 4-7. Geographic Access to Non-VA Hospitals, for All Enrollees, Enrollees <40 Miles from VA Medical Facilities, and Enrollees Residing >40 Miles from VA Medical Facilities**



Sources: Authors' analysis of Veterans Affairs Site Tracking System from second quarter 2015 and American Hospital Association Annual Survey of Hospitals; VA Planning Systems Support Group Enrollee file.

Note: Geographic access is defined in this figure as <40 miles driving distance between home and the hospital.

Enrollees living more than 40 miles from VA facilities face an average driving distance of 12.5 miles (standard deviation = 13.0 miles) to the nearest non-VA hospital (Table 4-5). Driving distances to more advanced hospitals are much higher for this population. Enrollees more than 40 miles from VA medical facilities drive 66.4 miles (standard deviation = 34.2 miles), on average, to the nearest teaching hospital and 97.2 miles (standard deviation = 46.5 miles) to the nearest academic hospital.

**Table 4-5. Average Driving Distance for Enrollees to Closest Non-VA Hospitals by Hospital Type (in miles; standard deviation shown in parentheses)**

<b>Non-VA Hospital Type</b>	<b>All Enrollees</b>	<b>Enrollees Residing &gt;40 Miles from Nearest VA Medical Facility</b>	<b>Enrollees Residing &lt;40 Miles from Nearest VA Medical Facility</b>
All (N = 6,300)	5.8 (6.3)	12.5 (13.0)	5.3 (5.1)
Teaching (N = 1,132)	21.6 (27.5)	66.4 (34.2)	10.8 (10)
Academic (N = 247)	43.5 (46.5)	97.2 (46.5)	14.2 (10.4)

Sources: Authors' analysis of VA Veterans Affairs Site Tracking System from second quarter 2015 and American Hospital Association Annual Survey of Hospitals; VA Planning Systems Support Group Enrollee file.

A similar pattern can be observed when considering access to highly specialized services that can be delivered only in a hospital.<sup>49</sup> Our estimates of geographic access to seven hospital-only services in non-VA hospitals shows that this type of care is widely accessible to enrollees overall (Table 4-6), from a low of 84.1 percent (coronary care unit) to a high of 99.1 percent (emergency departments).

The great majority of VA medical encounters are not time-sensitive on a scale of minutes to hours. Acute coronary syndromes is one possible exception. For some patients with heart attack, delays as short as 15 minutes may have prognostic significance. Patients with ongoing chest pain are recommended to call 911, and emergency responders typically transport patients to the nearest appropriately resourced hospital. Therefore, the differences in drive times between VA and non-VA hospitals are of interest.

We measured the distribution of enrollee-level drive time differences between VA and non-VA hospitals (See Tables F-43 and F-44, Appendix F). Considering any VA or non-VA hospital, we found that the median additional drive time to a VA hospital was 31.0 minutes (inter-quartile range, 11.4–70.2 minutes). The additional drive time to a VA facility was less than 15 minutes for 31.4 percent of all enrollees, and less than 30 minutes for 49.2 percent.

We repeated the analysis considering only VA and non-VA hospitals with interventional cardiology capability. In this case, median additional drive time was 34.2 minutes (inter-quartile

<sup>49</sup> These include seven services for two of the illustrative clinical populations we have been considering throughout this report. These services differ from the other 20 services insofar that they can only be delivered in a hospital setting. While VA has complete inventories of all 27 services in all of its facilities, there is no single, comparable data resource in the private sector.

## Assessment B (Health Care Capabilities)

range 10.9–85.7 minutes). The additional drive time to a VA facility with interventional capability (versus any non-VA hospital with the same) was less than 15 minutes for 31.2 percent of Veterans, and less than 30 minutes for 46.9 percent.

**Table 4-6. Geographic Access (within 40 Miles) to Selected Non-VA Hospital Services, Enrollees Residing >40 Miles from VA Medical Facilities Compared with All Enrollees**

Services (by Clinical Population)	Enrollees Residing <40 Miles Driving Distance of VA Hospital Services (%)	Enrollees Residing <40 Miles Driving Distance of Non-VA Hospital Services (%)	Mean (Standard Deviation) Driving Distance to the Nearest Non-VA Facility with the Service (in miles)
<b>Acute Coronary Syndromes</b>			
Emergency department			
All enrollees	50.2	99.1	7.3 (8.0)
Enrollees residing >40 miles from nearest VA medical facility	0.0	92.2	16.2 (16.1)
Enrollees residing <40 miles from nearest VA medical facility	54.1	99.7	6.6 (6.3)
Coronary care unit			
All enrollees	50.1	84.1	18.3 (23.7)
Enrollees residing >40 miles from nearest VA medical facility	0.0	26.3	58.8 (34.9)
Enrollees residing <40 miles from nearest VA medical facility	54.0	88.6	10.8 (9.7)
Interventional cardiology			
All enrollees	43.4	90.0	14.0 (19.5)
Enrollees residing >40 miles from nearest VA medical facility	0.0	32.1	52.4 (31.4)
Enrollees residing <40 miles from nearest VA medical facility	46.8	94.6	8.9 (8.8)
Diagnostic cardiac catheterization			
All enrollees	42.0	92.0	12.7 (18)
Enrollees residing >40 miles from nearest VA medical facility	0.0	40.2	48.0 (30.5)
Enrollees residing <40 miles from nearest VA medical facility	45.3	96.0	8.4 (8.4)

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

<b>Services (by Clinical Population)</b>	<b>Enrollees Residing &lt;40 Miles Driving Distance of VA Hospital Services (%)</b>	<b>Enrollees Residing &lt;40 Miles Driving Distance of Non-VA Hospital Services (%)</b>	<b>Mean (Standard Deviation) Driving Distance to the Nearest Non-VA Facility with the Service (in miles)</b>
Cardiac surgery			
All enrollees	39.7	85.6	16.9 (22.3)
Enrollees residing >40 miles from nearest VA medical facility	0.0	20.7	60.1 (33.1)
Enrollees residing <40 miles from nearest VA medical facility	42.8	90.7	10.1 (9.4)
<b>Colon Cancer</b>			
Oncology services			
All enrollees	55.3	94.8	10.6 (14.2)
Enrollees residing >40 miles from nearest VA medical facility	0.0	59.1	36.2 (28.4)
Enrollees residing <40 miles from nearest VA medical facility	59.7	97.6	7.9 (7.9)
Surgical services			
All enrollees	54.3	99.2	7.3 (8.0)
Enrollees residing >40 miles from nearest VA medical facility	0.0	92.4	16.1 (16)
Enrollees residing <40 miles from nearest VA medical facility	58.6	99.7	6.5 (6.3)

Sources: Authors' analysis of VA Site Tracking System and American Hospital Association Annual Survey of Hospitals; VA Planning Systems Support Group Enrollee file.

Enrollees living more than 40 miles from VA facilities are much less likely to have geographic access to specialized services in non-VA hospitals (Table 4-6). These enrollees are much less likely to live within 40 miles driving distance of coronary care units (26.3 percent), diagnostic cardiac catheterization (40.2 percent), cardiac surgery (20.7 percent), and oncology services (59.1 percent). Non-VA emergency departments provide the one exception: 92.2 percent of enrollees living more than 40 miles from a VA medical facility have geographic access to emergency care at non-VA hospitals.

Our assessment of access to care in non-VA hospitals indicate that nearly all VA enrollees living far from VA medical facilities can drive to community and emergency care within 40 miles, but they are much less likely to have access to academic and teaching hospital care, the sites in

which more complex care is offered. They are also much less likely to have geographic access to a range of highly specialized hospital care, including a range of cardiology, surgery, and oncology services. This finding suggests that expanding access to non-VA hospitals for Veterans living more than 40 miles from a VA facility can help most enrollees seeking routine and emergency care. But far fewer of these same enrollees live within a 40-mile driving distance of complex and specialized hospital care.

### **4.1.4.3 Enrollees' Geographic Access to Non-VA Providers**

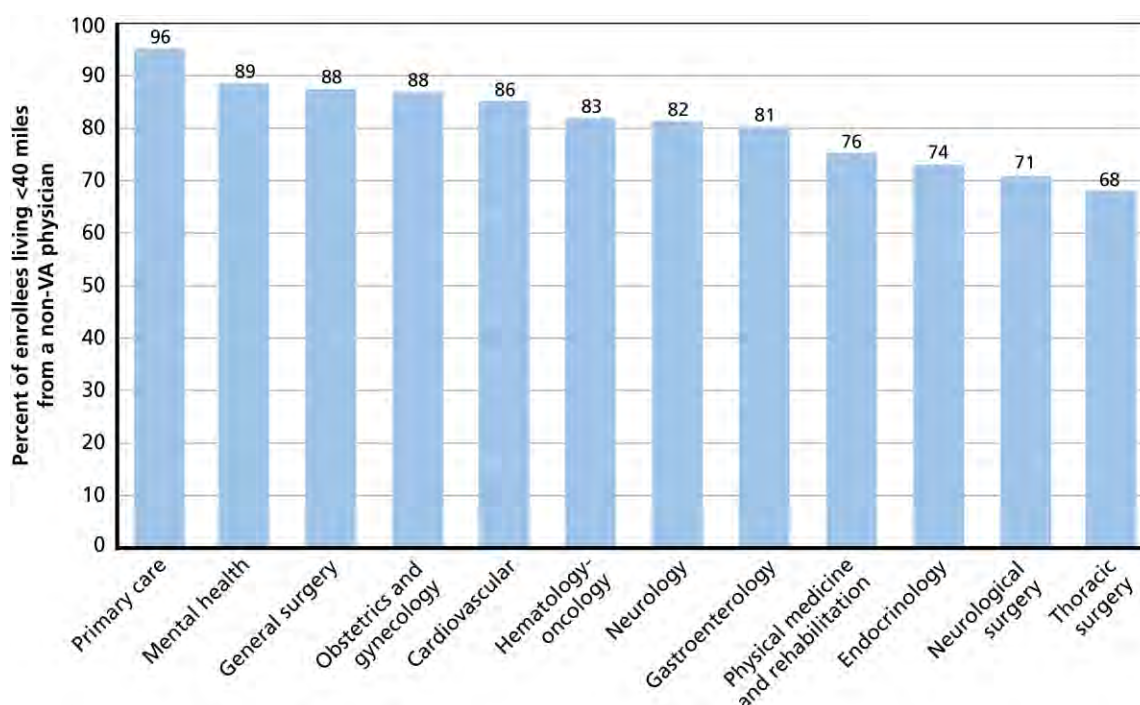
In this subsection, we present analyses of VA enrollees' access to non-VA providers in their communities.<sup>50</sup> Many VA enrollees live within 40 miles driving distance of non-VA physicians across multiple specialties. Depending on the specialty, between 68 percent (thoracic surgery) and 96 percent (primary care) of VA enrollees live within 40 miles of a non-VA physician (Figure 4-8). We have no information on wait times at these non-VA providers, but we expect that these wait times are similar to those in the general population. VA enrollees likely face similar levels of geographic access to providers as the general population.

---

<sup>50</sup> These analyses are based on analyses of the SK&A office-based physician database. SK&A has a team of more than 100 researchers who contact all physician offices in the United States every six months to update their database of characteristics of these practices (for example, number of physicians, physician specialty, whether they accept new patients, accept Medicare, accept Medicaid) in order to sell the most updated and accurate information to vendors and pharmaceutical companies.



Figure 4-8. Geographic Access to Non-VA Physicians Among VA Enrollees, by Specialty, 2013

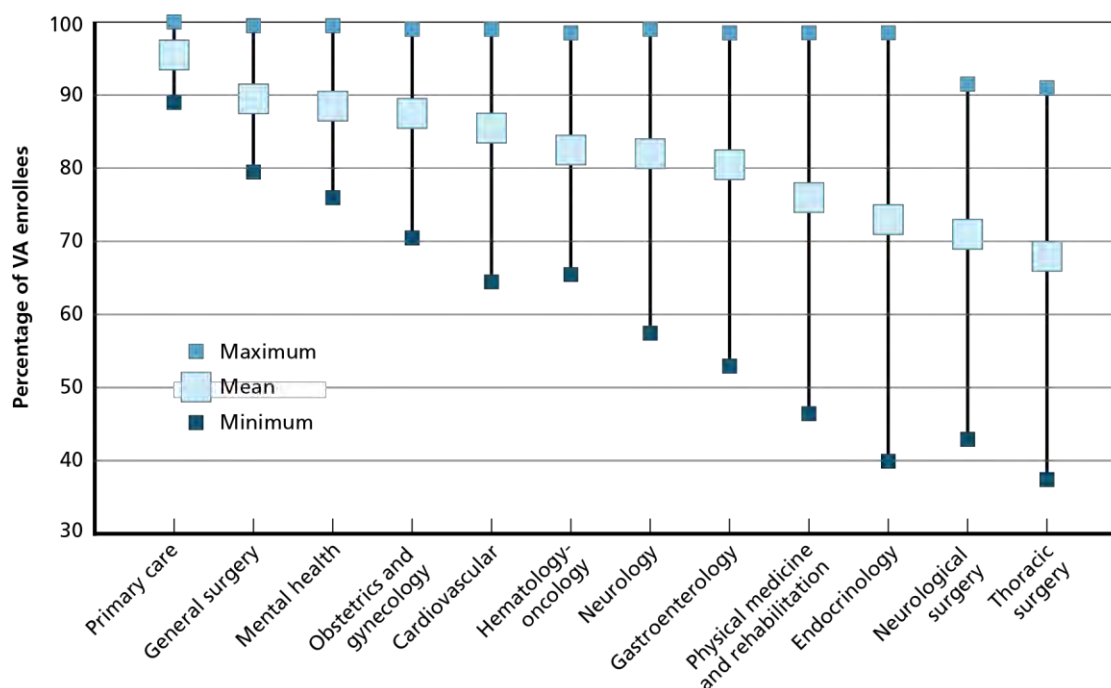


Source: Authors' analysis of SK&A Office-Based Physician Database and VA Planning Systems Support Group Enrollee file.

Geographic access to non-VA physicians varies widely by VISN (Figure 4-9). The smallest variation across VISNs was for primary care physicians, ranging from 89 percent to 100 percent of enrollees living within 40 miles of a primary care physician across the VISNs. We found wide variation, however, across VISNs for a number of specialties. For example, the proportion of enrollees living within 40 miles of an endocrinologist ranges from 40 percent to 99 percent across VISNs.



**Figure 4-9. Variation Across VISNs in Geographic Access to Non-VA Physicians Among VA Enrollees, by Specialty, 2013**



Source: Authors' analysis of SK&A Office-Based Physician Database and VA Planning Systems Support Group Enrollee file.

We also assessed the average number of non-VA physicians to which each enrollee would have access and the number of those physicians who accept Medicare and new patients. We focused on those that accept Medicare because, under new purchased care initiatives, VA is likely to reimburse physicians at or around Medicare reimbursement rates, because roughly half of VA patients are also covered by Medicare, and because providers who accept Medicare are likely to be eligible Choice program providers. On average, VA enrollees have a number of non-VA providers within a 40-mile radius from which to choose (Table 4-7). For example, VA enrollees within 40 miles of a primary care physician are, on average, near to 700 primary care physicians, of which 495 accept Medicare and new patients, whereas they are within 40 miles of approximately 21 thoracic surgeons, of which 19 accept Medicare and new patients. Again, these numbers are similar to those in the general population, given the distribution of Veterans across the country. These estimates do not provide any information about the accessibility of nearby providers; for example, the providers may have large panels and may not be able to provide timely appointments to patients.

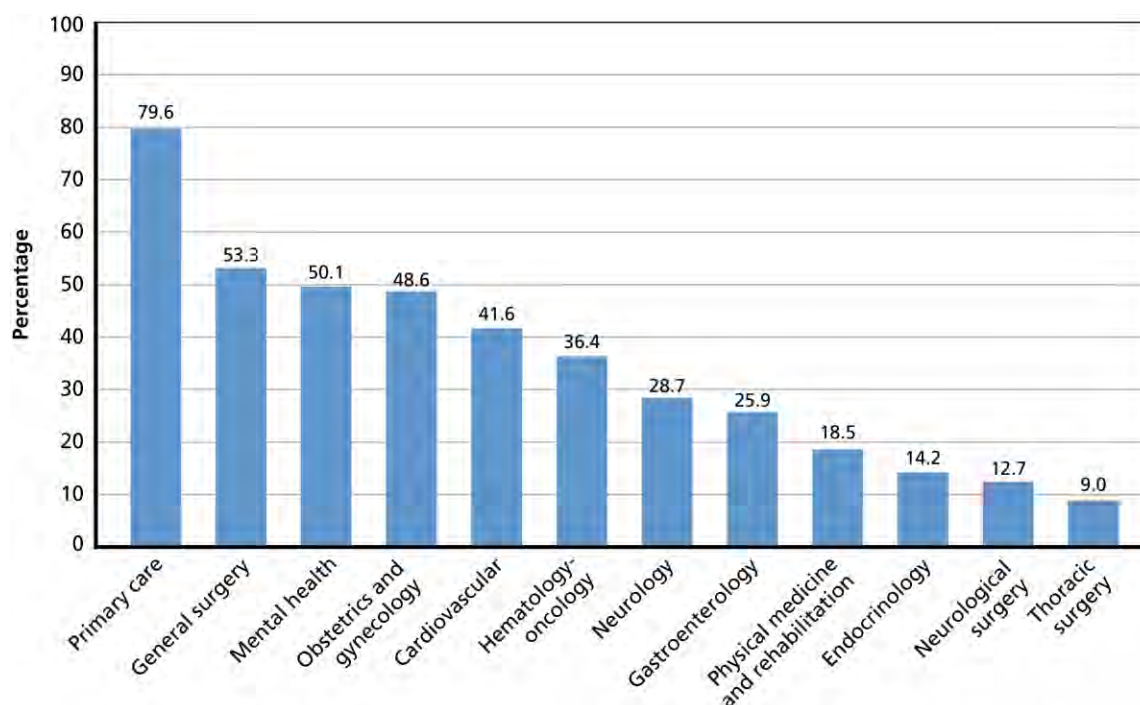
**Table 4-7. Average Number of Total Physicians and Physicians Accepting Medicare and New Patients Within and Outside of 40 Miles of VA Enrollees with at Least One Provider in Each Category, 2013**

<b>Specialty</b>	<b>Within 40 Miles—Avg. No. Physicians</b>	<b>Within 40 Miles—Avg. No. Physicians Accepting Medicare and New Patients</b>	<b>Outside 40 Miles—Avg. No. Physicians</b>	<b>Outside 40 Miles—Avg. No. Physicians Accepting Medicare and New Patients</b>
Primary Care	699.6	494.7	41.1	29.9
Obstetrics and gynecology	145.4	119.5	10.6	9.5
Mental Health	135.5	84	7.7	5.9
Cardiology	126.2	118.8	10.1	9.9
General Surgery	91.1	80.2	6.8	6.5
Gastroenterology	78.9	74.2	7.5	7.2
Hematology-oncology	78.6	71.7	5.8	5.7
Neurology	72.3	64.5	5.6	5.4
Physical and rehabilitation	39.3	33.9	3.9	3.8
Endocrinology	31.8	28.3	3.5	3.4
Neurological surgery	28.7	26.1	4.5	4.4
Thoracic surgery	20.9	19.4	3.9	3.8

Source: Authors' analysis of SK&A Office-Based Physician Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

In contrast, we found that enrollees who live more than 40 miles from a VA facility have very poor access to non-VA physicians (Figure 4-10). For all but two specialties, the majority of enrollees who live more than 40 miles from a VA facility live more than 40 miles from any provider in that specialty. Many of the specialties that we examined had extremely low levels of geographic accessibility. For example, only 9 percent of all VA enrollees who live more than 40 miles from a VA facility live within 40 miles of a non-VA thoracic surgeon.

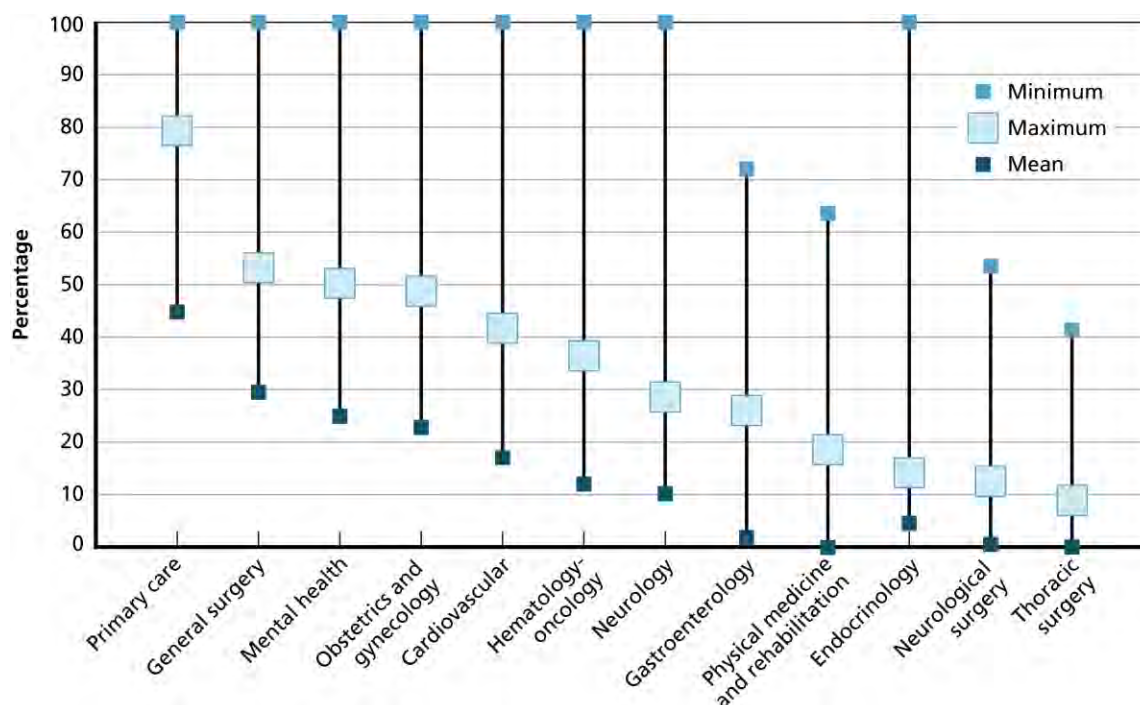
**Figure 4-10. Geographic Access to Non-VA Physicians Among Enrollees Residing >40 Miles from VA Medical Facilities, by Specialty, 2013**



Source: Authors' analysis of SK&A Office-Based Physician Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

Again, there is significant variation in access to providers across VISNs (Figure 4-11). For example, there is one VISN in which all enrollees more than 40 miles from a facility are also within 40 miles of an endocrinologist, whereas in another VISN only 4 percent of those enrollees are within 40 miles of an endocrinologist. We found similar variation across the majority of the specialties that we investigated.

**Figure 4-11. Variation Across VISNs in Geographic Access to Non-VA Physicians Among Enrollees Residing >40 Miles from VA Medical Facilities, by Specialty, 2013**

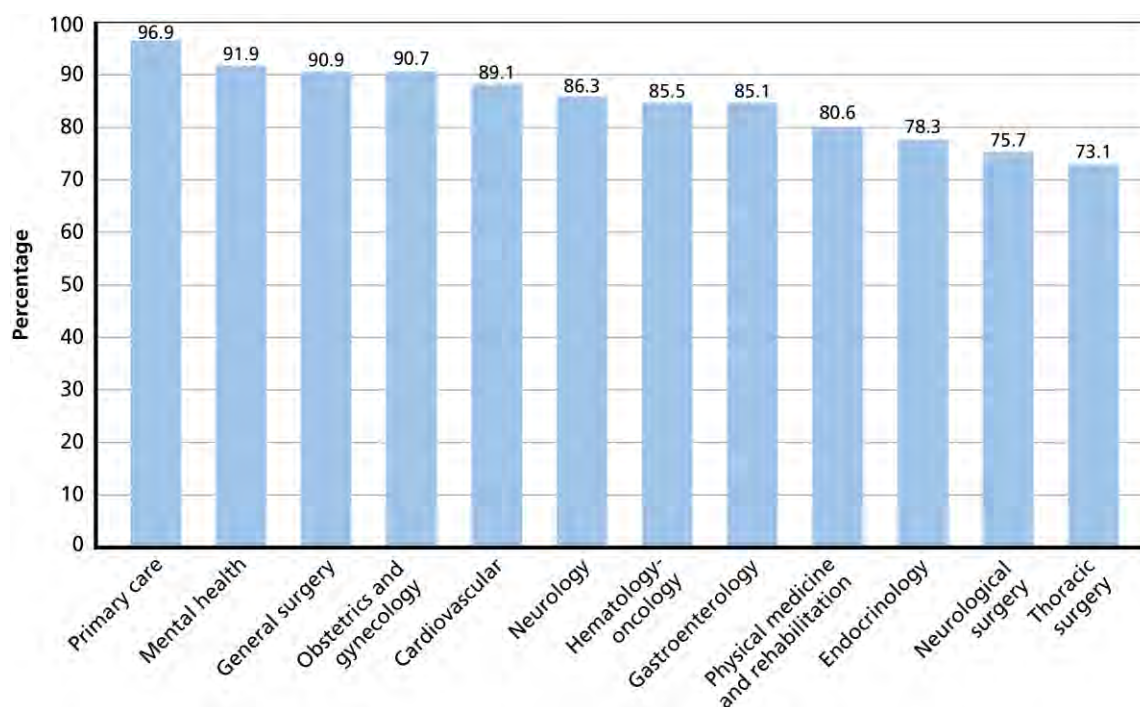


Source: Authors' analysis of SK&A Physician Office-Based Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

Enrollees who live farther than 40 miles from a VA facility but within 40 miles of at least one non-VA physician in a particular specialty have access to very few physicians within 40 miles of their homes, especially compared with all enrollees (Table 4-7). Enrollees with at least one primary care physician within 40 miles had, on average, 29.9 primary care providers within 40 miles that accepted Medicare and new patients. These enrollees had access to many fewer specialists. For example, enrollees living more than 40 miles from a VA facility had, on average, 3.4 endocrinologists within 40 miles that accepted Medicare and new patients.

Enrollees living within 40 miles of a VA facility have considerably better access to non-VA providers than enrollees living outside of 40 miles (Figure 4-12). The percent of enrollees within 40 miles of a VA facility living within 40 miles of non-VA providers ranges from 96.9 percent for primary care physicians to 73.1 percent for thoracic surgeons.

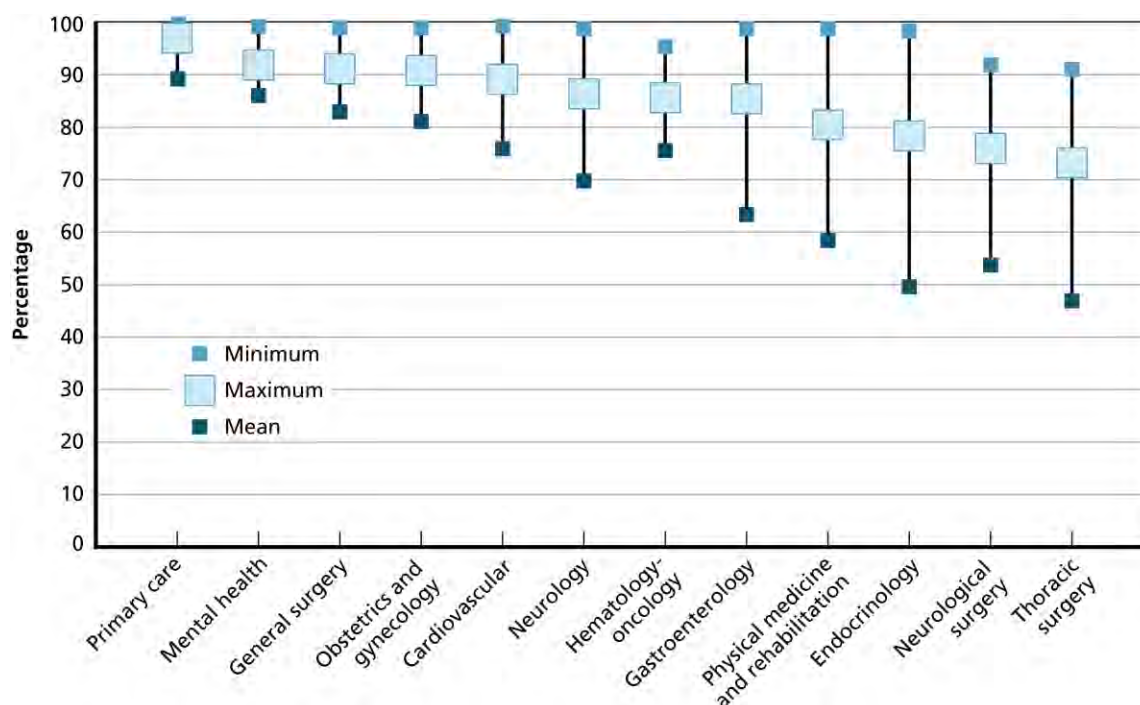
**Figure 4-12. Geographic Access to Non-VA Physicians Among Enrollees Residing <40 Miles from VA Medical Facilities, by Specialty, 2013**



Source: Authors' analysis of SK&A Office-Based Physician Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

There is considerably less variation across VISNs for enrollees living within 40 miles of a VA facility compared with those living outside of 40 miles (Figure 4-13). Generally, the variation increases as the mean access decreases.

**Figure 4-13. Variation Across VISNs in Geographic Access to Non-VA Physicians Among Enrollees Residing <40 Miles from VA Medical Facilities, by Specialty, 2013**



Source: Authors' analysis of SK&A Office-Based Physician Database, VA Site Tracking System, and VA Planning Systems Support Group Enrollee file.

#### 4.1.5 Subsection Summary

Among enrollees, geographic access to VA care varies when using different types of access standards and by region. For example, enrollees' geographic access to VA care varies according to which access standard is applied (that is, 40-mile straight-line distance, 40-mile driving distance, 60-minute driving time in free-flow traffic, 60-minute public transit time). Enrollees who must rely on public transportation, for example, have much less access than other enrollees.

Geographic access to VA care also varies according to the type of service required. Our assessment found that substantially lower proportions of enrollees have geographic access to advanced and specialized services in VA medical facilities. For example, only about 35 percent to 58 percent of enrollees have geographic access to cardiology services. Access was also low for specialized colon cancer care services (between 55 percent and 60 percent of enrollees) and for specialized diabetes care services (between 54 and 72 percent of enrollees).

While nearly all VA enrollees living far from VA medical facilities live within 40 miles of community and emergency care in non-VA hospitals, they are much less likely to have access to academic, teaching, and highly specialized hospital care. The same is true for access to non-VA clinicians in the community. A large share of VA enrollees living far from a VA medical facility

are within 40 miles of primary care providers but far fewer of these enrollees are near providers offering highly specialized care.

Taken together, these findings suggest that the geographic access standard of 40 miles driving distance may not adequately account for the distances that Veterans would need to travel for more specialized care, whether they are seeking this care at VA or non-VA facilities.

Furthermore, because VA beneficiaries that live greater than 40 miles from a VA facility have very little access to non-VA specialists, offering them coverage to non-VA providers may not appreciably improve their access to care especially in the most rural VISNs.

## 4.2 Timeliness

As noted in Section 1, timeliness is a dimension of access focused on how promptly needed care is available to Veterans (Fortney et al., 2011). The promptness with which needed care is available can be assessed from the perspective of a health care system (for example, wait time to the next available appointment) or from the perspective of patients and families (for example, getting an appointment as soon as needed). Timeliness can be assessed based on the type of care (for example, routine care versus urgent care, primary care or specialty care), or according to the type of patient (for example, people with particular health conditions). Several components of timeliness may be important, such as delays in starting care once a patient is at the facility (for example, time spent in the waiting room or time from arrival to start of treatment) and timeliness in moving through care for a specific problem (for example, time between evaluation, diagnosis, and treatment, between parts of the treatment, or between different services at one visit or across separate visits). Several aspects of timeliness have been shown to present a barrier to care for Veterans, including wait time before obtaining a clinic appointment and wait time in the outpatient waiting room (Villa, Harada, & Huynh-Hohnbaum, 2010; Wakefield et al., 2007).

### 4.2.1 Measurement of Timeliness of Care in VA

VA measures timeliness with two main sets of metrics. The first, assessed from the perspective of the VA health care system, reflects wait times for appointments for primary care, mental health care, and specialty care. Wait times to obtain an appointment reflect access delays in the health care system (Institute of Medicine, 2015). The second set, assessed from the perspective of Veterans, includes Veterans' responses to a survey regarding their experiences of getting timely appointments, care, and information.

#### 4.2.1.1 Measuring Wait Times for Appointments

No single standard or benchmark for wait times has been established on a national basis for the private sector. Experts have noted the importance of incorporating patient and family perspectives in setting standards for and assessing wait times to ensure that any standard imposed is in keeping with patient and family preferences (Brandenburg et al., 2015). The Institute for Healthcare Improvement recommends that the average number of days between the day that a patient tries to schedule an appointment and the third available appointment for a new patient physical, routine exam, or return visit ("third next available appointment") be the



same day for primary care and two days for specialty care (Institute for Healthcare Improvement, 2015).<sup>51</sup> In the Military Health System, access standards for primary care provided directly to military personnel aim for the third next acute appointment within one day and the third next routine appointment within seven days (Defense Health Agency, 2015).

The National Committee for Quality Assurance 2014 recognition program for PCMH suggests the standard of providing same-day appointments for both routine and urgent primary care (National Committee for Quality Assurance, 2014). Private-sector providers are not bound by standards proposed by authorities on health care quality measurement. In contrast, VA sets targets and reports wait times for primary care, mental health care, and specialty care measured as the proportion of appointments that were completed within a certain number of days of a preferred date.<sup>52</sup> Wait times are calculated separately for new patients and established patients. The preferred date refers to “the date that an appointment is deemed clinically appropriate by a VA health care provider, or, if no such clinical determination has been made, the date a Veteran prefers to be seen” (Federal Register, 2014). This metric takes into account appointments that were moved up, cancelled, rebooked, missed, and/or added during the month. VA considers this to represent most accurately the wait times that Veterans actually experience, as the data reflect when appointments actually occurred rather than the planned timing of pending appointments.

Past investigations identified errors in recording of Veterans’ desired appointment dates as well as other practices which may have resulted in VA reporting more favorable wait times than Veterans actually experienced (GAO, 2012c). The history of unreliable information regarding the timing of Veteran appointments has generated ongoing concern regarding the accuracy of VA wait-time data, including the data analyzed for this report.

In our analyses, we place particular emphasis on appointments completed within 30 days of the preferred date because Veterans who need to wait more than 30 days from the preferred date are eligible to seek purchased care through the Veterans Choice Program, and because VA’s most current data regarding VA wait times use these metrics. However, we recognize that there are important limitations to using VA data to assess timeliness according to a threshold number of days following a preferred date. First, the reliability of VA wait-time data have not been independently audited across VA facilities for the most recent time period that we report. Therefore, it is possible that some facilities have continued to record inaccurate preferred dates in an effort to report more favorable wait times than Veterans actually experienced at their facilities, or that some facilities have improved the accuracy of reported preferred dates recently in response to public scrutiny. Second, the preferred date metric does not indicate the

---

<sup>51</sup> The Institute for Healthcare Improvement recommends the “third next available” rather than the next available as it is a more accurate reflection of true appointment availability rather than serendipity (for example, available appointments due to cancellations or other unexpected events) (Institute for Healthcare Improvement, 2015).

<sup>52</sup> VA also reports wait times for “other” appointments. The “other” category includes a broad range of different services, including home-based care, laboratory tests, and emergency room care. Wait times averaged across this heterogeneous set of health care services are difficult to interpret. We therefore do not present them in this report.



absolute number of days that a Veteran actually waits, but instead measures wait times according to number of days *following* the preferred date, which might be any number of days in the future. VA does not systematically collect and report data on the time intervals *prior* to the preferred date, however. Third, the approach does not distinguish between visits for urgent care (which ideally should occur very shortly after the onset of illness or injury, not 30 days following the clinically indicated date) and visits for routine care (which may be scheduled well in advance). The second two of these limitations are likely a greater problem for assessing wait times for established patients, because for new patients, it is more reasonable to assume that the preferred date is as soon as possible (that is, the next available appointment) for either urgent or routine care.

We asked a range of VA health care administrators and health care workers about VA's measures of access. Respondents repeatedly indicated that it would be preferable to define appropriate wait times for a given condition or population of patients according to clinical indications or evidence, rather than establishing and imposing a blanket 30-day threshold. In addition, some respondents noted that VA facilities' performance on completed appointment measures is a function of many factors, including some factors that may not be in VA's control, such as Veterans not showing up for scheduled appointments. To address this concern, respondents suggested alternative or additional measures that reflect staff efforts to provide access (for example, calls to follow up with Veterans) or availability of appointments. Many further noted the importance of gaining Veterans' perspectives on access to care. The smaller subset of health care workers we interviewed referenced availability of appointments and staffing as challenges to providing timely care; efforts to extend clinic hours and schedule subsequent appointments on the day of the initial appointment were suggested as helpful steps forward.

### **4.2.1.2 Measuring Veterans' Perspectives on Timeliness of Care**

VA collects information on Veterans' experiences of care, including timeliness of care, via the SHEP PCMH (for outpatient care) and inpatient SHEP. Like the CAHPS Clinician and Group Survey and CAHPS Hospital Survey from which they are derived, the SHEP PCMH and inpatient SHEP measure aspects of care that are important to patients, and focus on questions for which the patient is the best or only source of information.

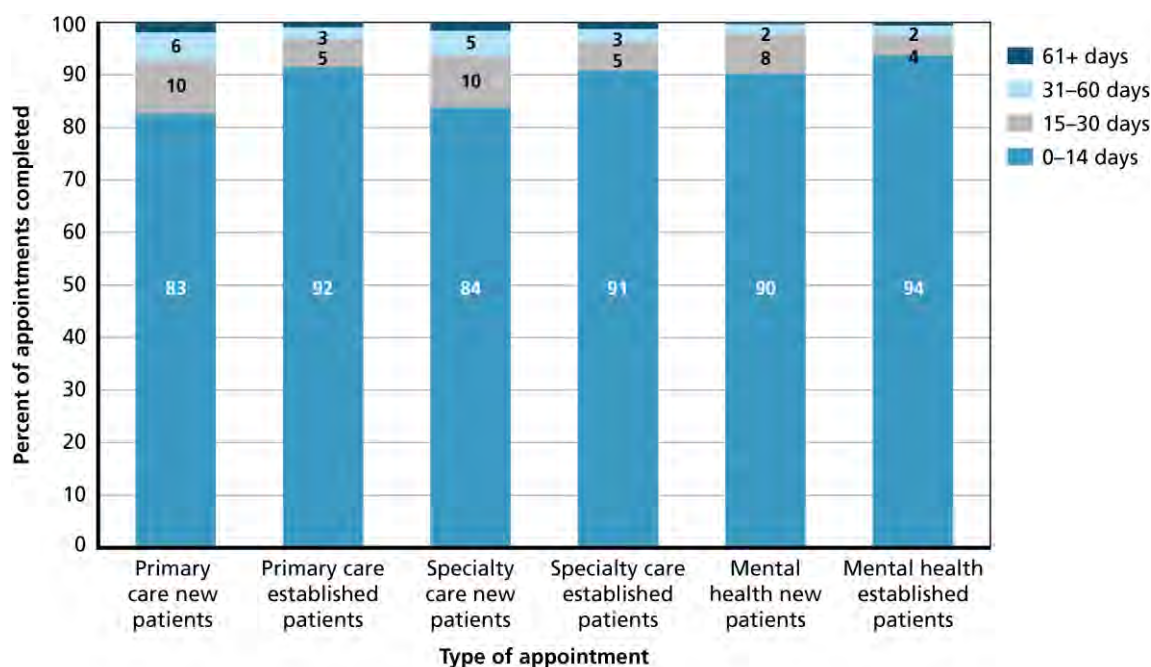
The SHEP PCMH asks Veterans to report on specific experiences of timely access to care, including whether they got urgent care appointments as soon as needed, got routine care appointments as soon as needed, and saw their health care provider within 15 minutes of their appointment time. These measures serve as important complements to measures of VA facility wait times because they assess access to care from the Veteran's perspective. In addition, because the survey questions, data collection procedures, and analyses are implemented in a systematic and standardized manner, SHEP survey results may be used to make fair comparisons between VA facilities, and with some caveats, to compare VA facility performance to CAHPS survey results from non-VA settings.

## 4.2.2 Average Wait Times for Appointments in VA

In the first half of FY 2015 (October 2014 through March 2015), the most recent period for which wait-time data were available for this report, VA data show that, across facilities, the average number of days that Veterans waited for new patient appointments was approximately six and a half days from the preferred date for primary care, six and a half days from the preferred date for specialty care, and three and a half days from the preferred date for mental health care. The corresponding days waited following preferred date for established patient appointments were four for primary care, four and a half for specialty care, and three for mental health care (data not shown in figure).

During the same time frame, national VA data show that more than 95 percent of VA appointments were completed within 30 days of the preferred date for established patients in primary care and specialty care, and both new and established patients in mental health care (Figure 4-14). Slightly lower percentages (93 and 94 percent) of VA appointments were completed within 30 days of the preferred date for new patients in primary care and specialty care, respectively. The vast majority of these appointments were completed within 14 days of the preferred date.

**Figure 4-14. Percentage of VA Appointments Completed Within 0–14, 15–30, 31–60, and 61+ Days of Preferred Date, First Half of FY 2015**



Source: Authors' analysis of VA wait-time data for the first half of FY 2015 obtained from the VSSC by The MITRE Corporation.

In the first half of FY 2015, across primary, specialty, and mental health care, VA data indicate that 156,576 new patient appointments (6.2 percent) and 581,562 established patient

appointments (3.5 percent) were not completed within 30 days. If some VA facilities are continuing to tamper with Veterans' preferred dates, the actual number of appointments not completed within 30 days of the preferred date may be even greater. Thus, although VA reports that most appointments meet VA's timeliness standards, some Veterans may still miss needed care or be at risk for poor health outcomes due to long waits for appointments. At VA facilities with average wait times of 30 days or more for the next available primary care appointment, Veterans may be less likely to use health care (Prentice et al., 2012), have less control over chronic conditions such as diabetes (Prentice et al., 2011), and have higher odds of mortality within six months (Pizer & Prentice, 2011) (although worse health outcomes due to longer wait times have not been confirmed by all studies [(Prentice et al., 2012)]).

Even when appointments are completed within VA wait-time standards, Veterans may face adverse health outcomes due to delays in care. To assess the clinical meaningfulness of delays, we asked VA facility Chiefs of Staff responding to the 2015 Survey of VA Resources and Capabilities to estimate the proportion of patients who experienced a clinically meaningful delay in care services for each of seven medical conditions. (A list of conditions and rationale for their inclusion is provided in Section 2.) Clinically meaningful delays were defined as those that might put a patient at risk for adverse outcomes, slow resolution of symptoms, or that are not compliant with VA or DoD guidelines. Responses were consistent across conditions: While nearly half of respondents (45 percent) reported that no patients experienced clinically meaningful delays, 42 percent of respondents reported that up to one in four patients experienced a clinically meaningful delay, and an additional 14 percent reported that more than one in four patients experienced a clinically meaningful delay. (More detailed results are described in Appendix B.)

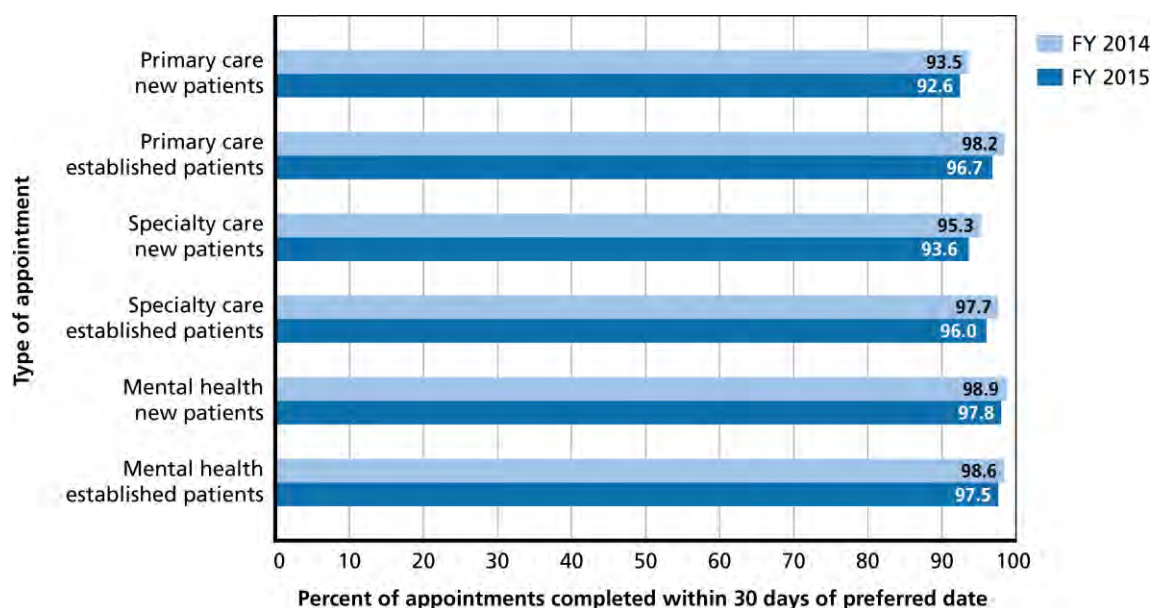
### 4.2.3 Recent Changes in Wait Times for Appointments in VA

To determine how wait times have changed over time, we assessed changes in the facility-level wait-time measures between the first half of FY 2014 and the first half of FY 2015. To identify meaningful changes over time in a standard way across appointment types, we calculated a standardized effect size using the commonly used Cohen's *d* formula, and interpreted the size of changes based whether their effect size values met Cohen's thresholds for "small," "medium," or "large" effects. (Details regarding the calculation of trends over time are described in Section 2.)

For all six appointment types, the percentage of appointments completed within 30 days was lower in the first half of FY 2015 than in the first half of FY 2014 (Figure 4-15). Decreases were very small for new patient appointments for primary care, small for new patient appointments for specialty care, medium for established patient appointments for primary care, and large for new and established patient appointments for mental health care and established patient appointments for specialty care. It is unclear whether reported declines in appointments completed within 30 days of preferred date over this period indicate actual lengthening of wait times – as might be expected, given the increased demand for VA services predicted by EHCPM – or reflect improvements in the accuracy of the wait-time data. Since the spring of 2014, hundreds of media stories have described VA wait times. This public scrutiny, in combination with announcements of disciplinary action against employees involved with gaming of reported

wait times, and extending of wait-time targets from 14 days to 30 days following preferred date, may have reduced the likelihood of VA employees tampering with VA's systems for recording of preferred dates.

**Figure 4-15. Percentage of VA Appointments Completed Within 30 Days of Preferred Date, First Half of FY 2014 and First Half of FY 2015**

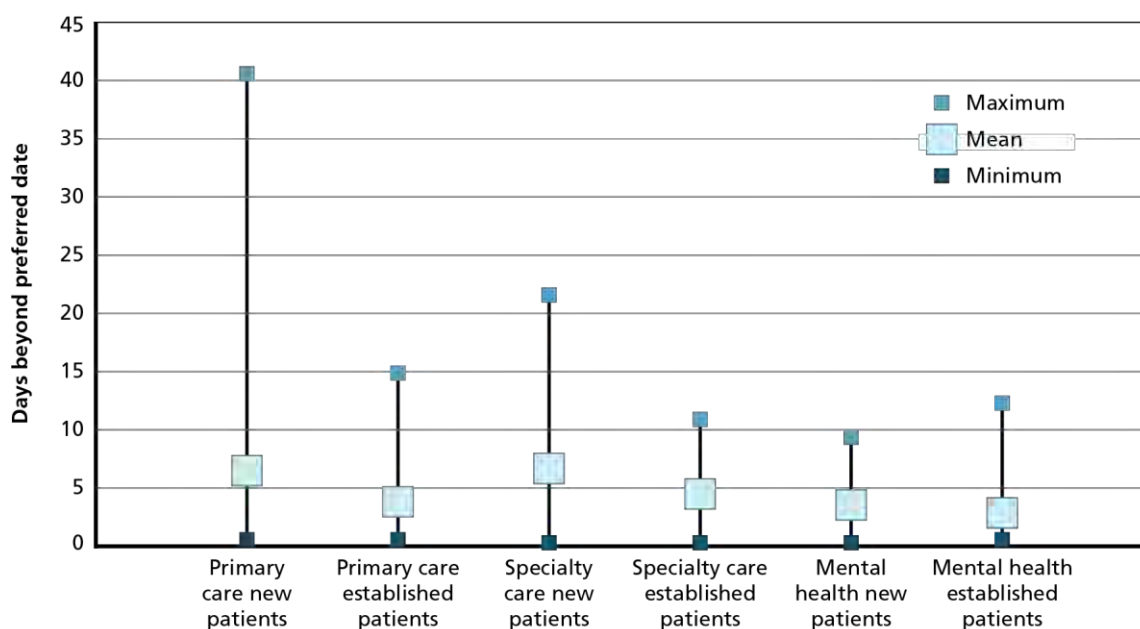


Source: Authors' analysis of VA wait-time data for first half of FY 2014 and the first half of FY 2015 obtained from the VSSC by The MITRE Corporation.

### 4.2.4 Variation in Wait Times Across VA Facilities

Wait times vary tremendously across VA facilities. For example, during the first half of FY 2015, the average number of days waited from preferred date ranged from less than one day (at the best-performing VA facility) to 41 days (at the worst-performing VA facility) for new primary care appointments, and from less than one day to 22 days from the preferred date for new specialty care appointments (Figure 4-16).

**Figure 4-16. Variation Across VA Facilities in Number of Days Waited for an Appointment Following Preferred Date, First Half of FY 2015**



Source: Authors' analysis of VA wait-time data for the first half of FY 2015 obtained from the VSSC by The MITRE Corporation.

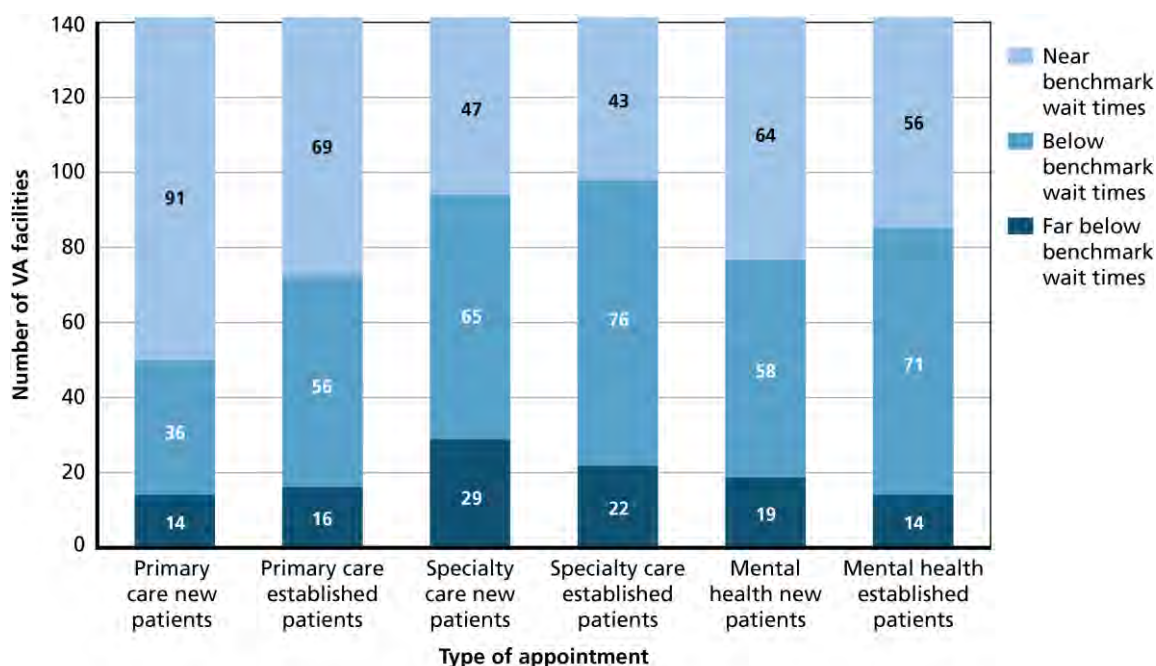
To compare across facilities, we estimated a benchmark for wait times for each appointment type. Although VA aims to complete 100 percent of appointments within the 30 days from preferred date threshold, no facilities achieved wait times of less than 30 days for 100 percent of Veterans for all types of appointments. Therefore, we set performance benchmarks to reflect wait times that VA facilities have demonstrated are achievable: the average wait time at the top-performing VA facilities, defined as the top 10 percent of facilities with regard to wait time for each appointment type. We then classified the performance of each facility into one of three categories relative to the benchmark: “near the benchmark” (within 0.5 standard deviation above or below the benchmark), “below the benchmark” (>0.5 to 2.0 standard deviations below the benchmark), or “far below the benchmark” (>2.0 standard deviations below the benchmark).<sup>53</sup>

Top-performing VA facilities achieve completed appointments within 30 days for virtually all of their new and established primary care, mental health care, and specialty care patients. The benchmarks for wait times for each appointment type (defined as the mean of the top 10 percent of facilities) were very high, ranging from 98.97 percent for established specialty care patients to 99.96 percent for new mental health care patients.

<sup>53</sup> Thresholds for achieving each of these benchmark categories for each appointment type are described in the notes for Figure 4-17.

More facilities fall far below the benchmark for specialty care than for primary care or mental health care appointments (Figure 4-17). Twenty-nine facilities were far below benchmark for specialty care appointments for new patients, 22 far below the benchmark for specialty care appointments for established patients, and 19 facilities far below the benchmark for mental health care appointments for new patients. In contrast, between 14 and 16 facilities were far below the benchmark for primary care appointments for new or established patients and mental health care appointments for established patients.

**Figure 4-17. Number of VA Facilities with Wait Times Near, Below or Far Below Benchmarks, First Half of FY 2015, by Appointment Type**



Source: Authors' analysis of VA wait-time data for the first half of FY 2015 obtained from the VSSC by The MITRE Corporation.

Notes: During the first half of FY 2015, for primary care appointments for new (established) patients, the benchmark was 99.95 percent (99.74 percent), and facilities were categorized as near benchmark if the percentage of appointments completed within 30 days of preferred date was above 95.98 percent (98.22 percent); below benchmark if between 84.05 percent and 95.98 percent (93.68 percent and 98.22 percent); and far below benchmark if below 84.05 percent (93.68 percent). The corresponding benchmark was 99.16 percent (98.97 percent) for specialty care appointments for new (established) patients, and thresholds were above 96.90 percent (97.73 percent) for near benchmark, between 90.13 percent and 96.90 percent (94.00 percent and 97.73 percent) for below benchmark, and less than 90.13 percent (94.00 percent) for far below benchmark. The corresponding benchmark was 99.96 percent (99.62 percent), and thresholds for mental health appointments for new (established) patients were above 99.02 percent (98.51 percent) for near benchmark, between 96.21 percent and 99.02 percent (95.19 percent and 98.51 percent) for below benchmark, and less than 96.21 percent (95.19

percent) for far below benchmark.

Appendix F includes maps displaying the performance of each VA facility in March 2014 through October 2015 (first half of FY 2015) with reference to the benchmark.

### 4.2.5 VA Wait Times Compared with the Private Sector

There is no national data source for wait times in non-VA settings with which to compare VA wait times. In addition, the limited wait-time data available in the private sector use a measure that is not directly comparable to VA's: total number of days between trying to schedule an appointment and the appointment date rather than VA's number of days *following the preferred date*. We therefore cannot make any conclusive statements about whether wait times in VA are better or worse than they are in the private sector overall. However, if we make the assumptions that (a) the preferred date for new VA patients is set by patient preference (rather than by clinical determination), (b) new VA patients typically want an appointment as soon as possible (that is, a preferred date of the same day), and (c) Veterans' preferred dates are entered accurately, VA's reported wait times for new patient primary and specialty care are shorter than wait times reported in focused studies of the private sector.

A 2013 study of private-sector health care wait times in 15 major metropolitan markets assessed the average number of days between an initial call to make a new patient appointment and the appointment date. Across these markets, the average wait time for an appointment with a family physician was 19.5 days, ranging from a low of five days in Dallas to a high of 66 days in Boston; average waits for specialty care appointments for new patients ranged from 10 days for orthopedic surgery to 29 days for dermatology (Merritt Hawkins, 2014). A similar 2013 study in Massachusetts reported average waits of 39 days between an initial call to make a new patient appointment and the appointment date for family medicine, 50 days for internal medicine, and between 22 and 37 days for specialty appointments, with shortest specialty care waits for orthopedic surgery and longest for obstetrics and gynecology (Massachusetts Medical Society, 2013).

By comparison, for the first half of FY 2015, VA reports that across facilities, the average number of days that Veterans waited for new patient appointments was approximately six and a half days from the preferred date for both primary care and specialty care, ranging from less than one day (at the best-performing VA facilities) to 41 days for primary care and 22 days for specialty care (at the worst-performing VA facilities).

Private-sector wait times are calculated only for those physicians or facilities accepting new patients (for example, 51 percent of family medicine physicians and 45 percent of internal medicine physicians in the Massachusetts study). VA facilities do not have the option of turning away new patients, and so might be reasonably expected to have longer wait times. However, the most recent wait-time data reported by VA suggest that VA wait times may be shorter than the wait times reported in the limited literature we found for the private sector.



#### 4.2.6 Veterans' Perspectives on Timeliness of VA Care

Veterans responding to the FY 2014 SHEP PCMH reported that they had better access to routine care than to urgent care from VA facilities. Most Veterans responding to the survey reported that they were not always able to get the care or information they need after hours.

Across VA facilities, the average proportion of Veterans responding to the SHEP PCMH who reported that they always got a routine care appointment as soon as needed was 55 percent (Figure 4-18); the corresponding proportion for urgent care appointments was 46 percent. At the top-performing VA facilities (defined as the top 10 percent of facilities for each question), the average proportions for routine and urgent care were 69 percent and 61 percent, respectively, suggesting considerable room for improvement for even the top-performing VA facilities.

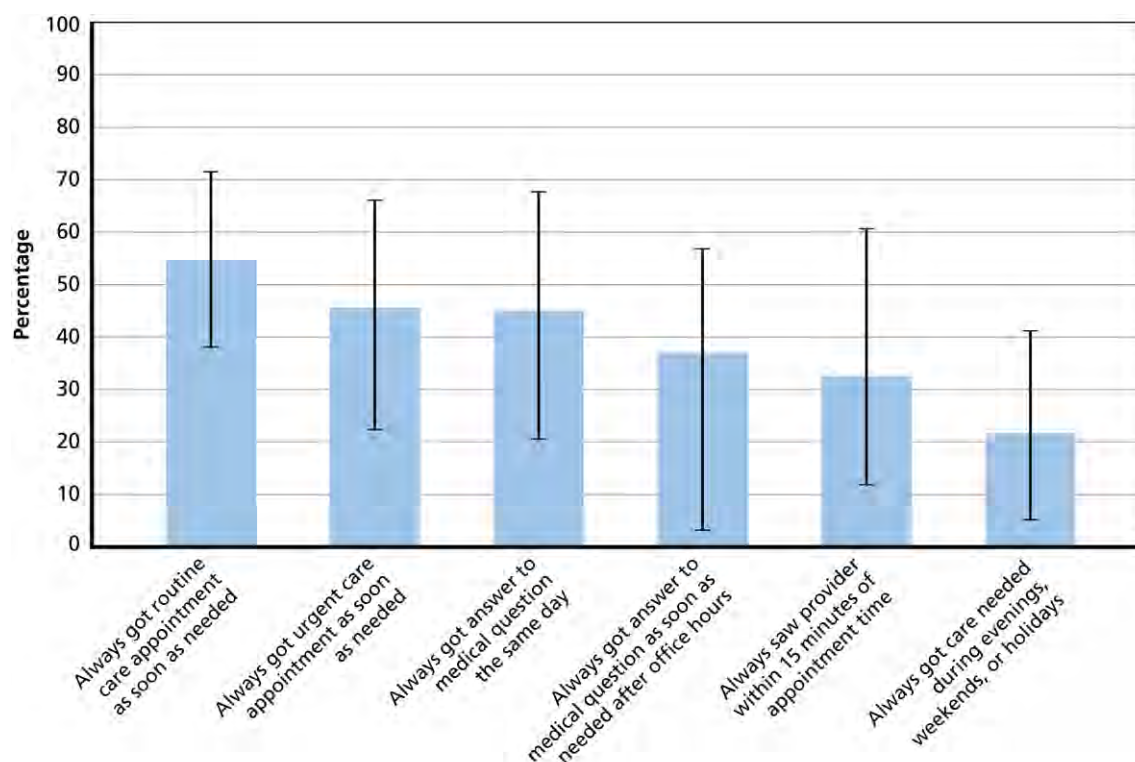
The average proportion of Veterans reporting that they were always able to get the care they needed from the provider's office during evenings, weekends or holidays was 22 percent across VA facilities. Even at the top-performing VA facilities, only 36 percent of Veterans reported that they were able to do so.

Across facilities, an average of 45 percent of Veterans reported always getting an answer to a medical question the same day when they called their provider during regular office hours. The proportion reporting that they always got an answer to a medical question as soon as needed when calling the provider's office *after* regular office hours was 37 percent.

As shown in Figure 4-18, the difference in performance between the best and worst-performing VA facilities on each of the SHEP PCMH questions related to timely care, appointments, and information is very large, ranging from 36 percentage points between the best and worst facilities for seeing a provider within 15 minutes of the appointment time to 54 percentage points for getting an answer to a medical question the same day. For context, differences of as few as three to six percentage points on access-related questions on a CAHPS health plan survey have been associated with substantial differences in rates of voluntary disenrollment from Medicare plans (Lied et al., 2003).



**Figure 4-18. VA Facility Average of Percent of Veterans Responding “Always” to Access Questions on the SHEP PCMH, FY 2014**



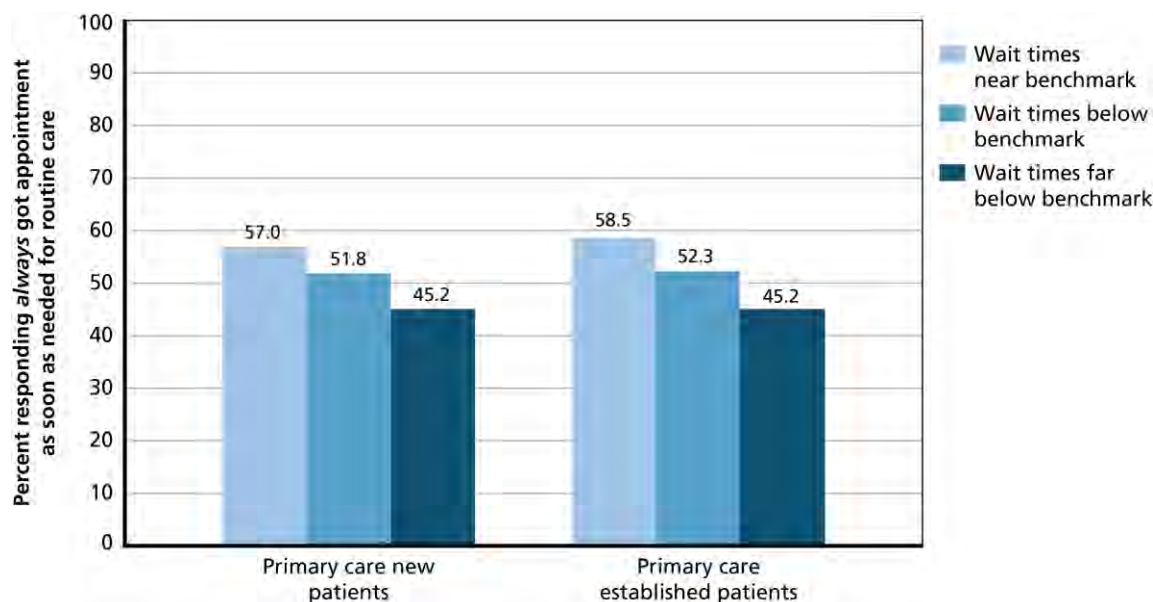
Source: Facility-level patient experience data for VA patients from the SHEP PCMH in FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The height of the bar is equal to the mean percentage of patients who responded “always” to each question. The line extending from the top of the bar represents the range of values at the VA facility level, from the minimum (worst-performing facility) to the maximum (best-performing facility).

As noted above, VA wait-time metrics do not allow for precise tracking of the absolute number of days that Veterans wait for appointments. However, our analysis of Veterans’ SHEP reports suggests that VA-reported wait times are an accurate indicator of the *relative* timeliness of appointments across VA facilities. Veterans who receive care from VA facilities with longer wait times report worse experiences of access than those who receive care from facilities with shorter wait times (Figure 4-19). For example, the average proportion of Veterans who reported that they “always” got an appointment as soon as needed for routine care was statistically significantly higher for facilities with the shortest wait times for new primary care patients (near benchmark) than for facilities below the benchmark; the same pattern is true between facilities below the benchmark and those far below the benchmark. The pattern of results was similar for all SHEP questions regarding timely care, appointments and information and for wait times for all types of appointments.

Even at the facilities with the shortest wait times, fewer than three in five Veterans report that they “always” get an appointment as soon as needed, suggesting that even facilities that achieve VA’s wait-time standards do not meet many Veterans’ expectations for timely appointments.

**Figure 4-19. Percentage of Veterans in VA Facilities Responding That They “Always” Got Appointment for Routine Care as Soon as Needed, by Performance on Primary Care Wait Times**



Sources: Benchmark categories were established by authors’ analysis of VA wait-time data for the first half of FY 2015 obtained from the VSSC by The MITRE Corporation. Facility-level patient experience data for VA patients from the SHEP PCMH in FY 2014 were obtained from the VA Office of Performance Measurement.

Note: Statistical significance was determined based on t-tests for pairwise differences with Bonferroni adjustment for multiple comparisons.

Once Veterans are in a VA facility to attend scheduled appointments, most wait longer than 15 minutes. Across facilities, the average proportion of Veterans responding to the SHEP PCMH in FY 2014 who reported always seeing a health care provider within 15 minutes of their appointment time was 33 percent; the average proportion at the highest-performing VA facilities was 46 percent. Since 2010, the proportion of Veterans responding to the Survey of Enrollees who either completely agreed or agreed that Veterans like them can get in and out of a VA appointment in a reasonable time has declined substantially (from 73 percent in 2010 to 65 percent in 2014), suggesting that Veterans perceive that in-facility waits for appointments have worsened over time. In-facility wait times are important to Veterans: in online Yelp reviews of VA facilities, 6 percent of reviewer comments were regarding long wait times within VA facilities once Veterans arrived for scheduled appointments, making such complaints among

the top 10 most common types of comments about VA facilities. An additional 3 percent of comments complimented the VA facility for a short wait for an appointment once at the facility.

### 4.2.7 Veteran Reports Regarding Timeliness of Care Compared with the Private Sector

There are no nationally representative data with which to compare SHEP PCMH results.<sup>54</sup> However, VA's SHEP PCMH survey contains the same measures as the CAHPS Clinician & Group PCMH Survey that is used widely throughout the United States to collect information on patients' experiences with care. The CAHPS Database hosted by the AHRQ contains comparative data for this survey from medical practices that volunteer to submit their survey responses (AHRQ, n.d.). The most recent year of the CAHPS Database available at the time of this report, 2013, includes results from 833 participating practice sites administering the CAHPS Clinician & Group PCMH Survey (AHRQ, 2014). These practices do not constitute a representative sample of all medical practices in the United States, and given their willingness to voluntarily submit their scores, high-performing practices are likely over-represented. The practices differ from the complete set of VA facilities for which we report performance. Therefore, we compare the performance of the *top-performing VA facilities* in FY 2014 with the *average performance of the Database practices* in 2013 to examine the relative strengths and weakness of top-performing VA and non-VA facilities. Since some CAHPS Database practices may not be high performers, we also compare the performance of the *75th percentile of VA facilities* for each measure with the *average performance of the Database practices*.

We were not able to adjust the CAHPS Database survey scores to account for factors such as respondents' age, sex, self-reported health and mental status, or education, which have been shown to be associated with reporting systematically higher or lower responses on patient experience surveys (Zaslavsky et al., 2001; Hargraves et al., 2001; Elliott et al., 2009). Our analyses of inpatient SHEP data, described in Section 5, suggest that adjusting for these factors may account for differences of up to three percentage points in either direction between reports of patient experience from SHEP and those from a comparable CAHPS survey.<sup>55</sup> Thus, if differences between VA SHEP scores and CAHPS Database scores are greater than three percentage points, they are unlikely to be explained by patient mix alone. Here, we consider differences of up to three percent between scores of high-performing VA facilities and average CAHPS Database practices as comparable performance, and differences greater than three percent to indicate truly higher or lower performance.

Taking into account this three percent margin, *top-performing VA facilities* were comparable to *average practices* in the CAHPS Database, but the *75th percentile of VA facilities* performed substantially worse than average CAHPS Database practices, with regard to the proportion of patients reporting that they always got a routine care appointment as soon as needed (69

---

<sup>54</sup> National scores are available for the CAHPS Health Plan Survey and Medicare CAHPS surveys; however, the measures on these surveys are not the same as those on the SHEP PCMH.

<sup>55</sup> As reported in Section 5, the adjustment may account for an average of 4 points for overall ratings of care.

percent for top-performing VA facilities and 61 percent for the 75th percentile of VA facilities versus 72 percent for CAHPS Database practices) and saw their provider within 15 minutes of their appointment time (46 percent and 39 percent versus 49 percent, respectively).

Across VA facilities, Veterans responding to the SHEP PCMH at *top-performing VA facilities* and *the 75th percentile of VA facilities* were substantially less likely than surveyed patients in CAHPS Database practices to report that they always got an appointment for urgent care as soon as needed (61 percent at top-performing VA facilities and 52 percent at the 75th percentile of VA facilities versus 67 percent for CAHPS Database practices), got an answer to a medical question the same day when they phoned their provider's office during regular office hours (59 percent and 51 percent versus 64 percent, respectively), and got an answer to a medical question the same day when they phoned their provider's office *after* regular office hours (55 percent and 44 percent versus 64 percent, respectively).

### 4.2.8 Subsection Summary

The average number of days that Veterans wait for appointments varies tremendously across VA facilities, indicating substantial opportunities for improvement in some facilities. Most Veterans complete their appointments within VA timeliness standards of within 30 days of the preferred date. However, Veterans who do not receive care within 30 days may be at risk of poor health outcomes. Further, VA's timeliness standard is much less demanding than alternative standards that have been proposed in the private sector. The standard is also sensitive to the definition of the "preferred date," which has been subject to gaming. For example, the VA Inspector General found that VA staff regularly entered false information regarding preferred dates of care. Alternative standards, such as those that assess availability rather than completion of appointments, may be less subject to gaming and more comparable to private-sector standards.

Even at the facilities with the shortest wait times, many Veterans report that they do not always get an appointment as soon as needed, suggesting that even these top-performing facilities do not meet many Veterans' expectations for timely appointments. Veterans are substantially less likely than patients in private-sector practices to report that they got appointments, care, and information as soon as they needed.

## 4.3 Financial Access

### 4.3.1 Veterans' Out-of-Pocket Costs for VA Care

Although Veterans do not pay premiums to enroll in VA care, some of them do face out-of-pocket costs. Copayments for VA health care services vary by the priority group of the Veteran (VA, 2015h; VA, 2015i) though even within priority groups, Veterans can face differing copayment levels for a variety of reasons, including reason for enrollment, severity of disability,

and income.<sup>56</sup> In 2015, those in priority group 1 have no copays. For reference, Assessment A reports that as of 2013, Veterans in priority group 1 made up more than a quarter (27 percent) of all users of VA health care. Copayments for non-service connected care for primary care visits (\$15 per visit), specialty care visits (\$50 per visit), care from a Community Living Center (up to \$97 per day), adult day health care (up to \$15 per day), or domiciliary care (\$5 per day) are the same for those in priority groups 2 through 8 for those Veterans who have to pay them. Veterans in groups 2 through 6 have increased financial protection for medications, facing copays of \$8 for each 30-day or less supply of medications and a \$960 annual out-of-pocket maximum. Veterans in groups 7 and 8 pay copays of \$9 for these medications and face no annual out-of-pocket maximum. While inpatient care is free to those in groups 2 through 6, out-of-pocket payments for inpatient stays are required from Veterans in groups 7 and 8. For reference, Assessment A reports that as of 2013, Veterans in priority groups 7 and 8 made up 22 percent of all users of VA health care.

By comparison, in 2014, individuals with employer-sponsored health insurance paid copays of \$24 for primary care and \$36 for specialty care visits with in-network providers and between \$11 and \$83 for each 30-day supply of medication, depending on drug type (Kaiser Family Foundation & Health Research & Educational Trust, 2014).<sup>57</sup>

Figure 4-20 displays data from the 2012 Medical Expenditure Panel Survey on annual out of pocket payments for Veterans who use VA care. Out-of-pocket costs were lowest for those with both VA and Medicaid coverage (\$285) or VA and other public insurance, such as Tricare (\$818). Higher out-of-pocket payments among those with VA and Medicare (\$1,282), VA and other private health insurance (\$1,646), and VA and more than one other type of coverage, such as both Medicare and employer-sponsored insurance (\$1,714), likely indicate that these Veterans rely less on the VA system and are therefore paying the Medicare or private health insurance cost sharing. By comparison, in 2012, individuals with employer-sponsored health insurance paid an average of \$951 toward their premiums for individual coverage (Kaiser Family Foundation & Health Research & Educational Trust, 2014) plus additional out-of-pocket costs for copays and coinsurance. In 2012, average outlays for copays and coinsurance for non-Veterans ranged from \$742 for those with private insurance only to \$1,049 for those with more than one other type of coverage, such as both Medicare and employer-sponsored insurance

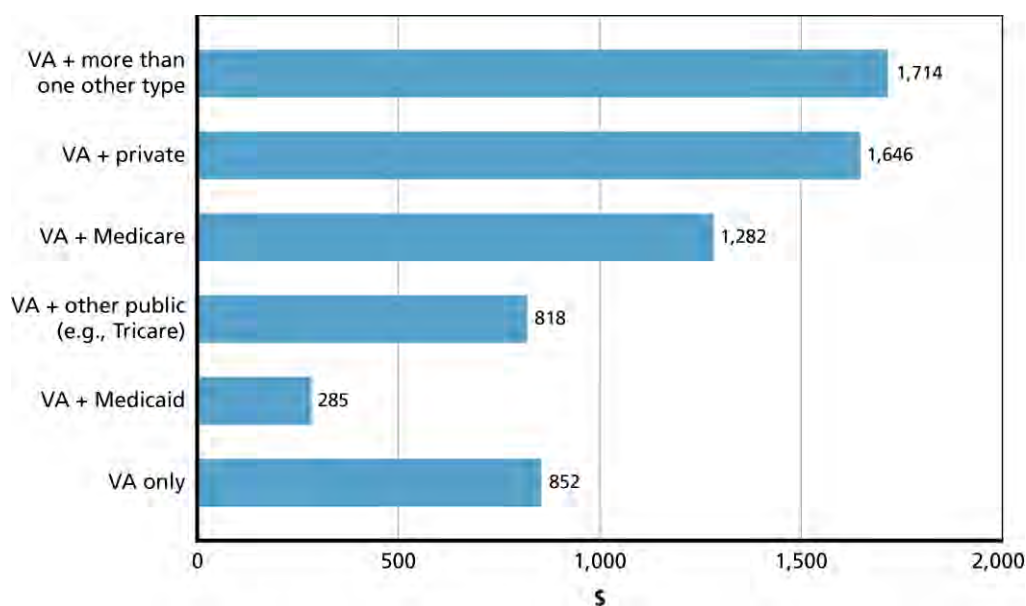
---

<sup>56</sup> This report offers a high-level summary of copayments. Copayments for individual Veterans may vary for a number of reasons. For example, there are a variety of exemptions to copayment requirements for non-service connected care. Veterans can be exempted from copayments if their incomes are below specified thresholds depending on location. More information on geographic means tests can be found here: [http://www.va.gov/healthbenefits/resources/publications/IB10-497\\_means\\_test\\_gmt\\_and\\_pension\\_threshold\\_nov14.pdf](http://www.va.gov/healthbenefits/resources/publications/IB10-497_means_test_gmt_and_pension_threshold_nov14.pdf). Copayments also vary on whether the service is related to a clinical trial and the Veterans' eligibility reason for VHA services, even within priority group, particularly for services such as medications. For more detailed information on copayments for medications for specific groups, please see: [http://www.va.gov/healthbenefits/resources/publications/IB10-336\\_medication\\_copay\\_brochure\\_apr2014.pdf](http://www.va.gov/healthbenefits/resources/publications/IB10-336_medication_copay_brochure_apr2014.pdf).

<sup>57</sup> Some individuals with employer-sponsored health insurance face coinsurance instead of copays for prescription drugs, often depending on drug type.

(authors' analysis of 2012 Medical Expenditure Panel Survey data). Comparisons between Veteran and non-Veteran total out-of-pocket costs should be made with caution given differential patterns of service use between the two groups.

**Figure 4-20. Annual Out-of-Pocket Payments Reported by VA Users in 2012, by Insurance Type**



Source: Authors' analysis of 2012 Medical Expenditure Panel Survey data.

### **4.3.2 Cost Factors Related to Enrollment and Reliance on VA**

Most Veterans—particularly unemployed Veterans, those with low incomes, and those without other health insurance—believe that VA health care is their most cost-effective option. In 2014, approximately two-thirds of Veterans responding to the Survey of Enrollees indicated that they completely agreed or agreed that if the cost of health care increases, they would use VA more, that VA offers Veterans like them the best value for their health care dollar, and that VA is the most cost-effective provider for Veterans like them. Low-income Veterans (those with incomes under \$36,000 per year) and those who were unemployed were significantly more likely than Veterans with higher incomes or employment to report that their use of VA would decrease if their financial resources improved. Twenty-eight percent of Veterans indicated that their use of VA would decrease if their financial resources improved. This suggests that for a substantial minority of Veterans, non-VA care is preferred if available. In interviews, VA administrators and representatives of Veteran Service Organizations noted that Veterans generally like to get their care from VA, but that some Veterans with affordable non-VA care options seek care elsewhere rather than dealing with challenges associated with determining their eligibility for services and seeking reimbursement, facing real or perceived long VA wait times, undergoing the inconvenience of making appointments with automated telephone systems or call centers, and

receiving care in VA settings that are less likely to have the amenities and state-of-the art equipment of the private sector.

VA health care workers interviewed by RAND noted that lack of an affordable private insurance option is a key reason why Veterans enroll in VA. This finding is in keeping with prior studies, which have reported that Veterans seek VA care due to its low cost relative to their other coverage alternatives (Jonk et al., 2005; Washington, Yano, Simon & Sun, 2006; Nelson et al., 2007; Petersen et al., 2010; Nayar et al., 2013).

Veterans with access to both VA services and other sources of health care, such as Medicare display a mixed pattern of utilization, relying on VA for some types of care and on additional sources of insurance for other care (West & Weeks, 2007; Liu et al., 2010). Some of this mixed utilization is likely due to the relative cost of care between VA and the Veteran's alternative source of health care coverage.

Unemployment and lower income status are both independently associated with an increased reliance on VA services (Jonk et al., 2005; Washington, Yano, Simon, & Sun, 2006; Fillenbaum et al., 2007; Nelson et al., 2007; Petersen et al., 2010), likely due in part to the demand for lower cost health care services among unemployed and lower income Veterans.

Potential impacts of the Affordable Care Act on reliance on VA are described in Assessment A.

### 4.3.3 Subsection Summary

VA is often Veterans' most affordable option for health care coverage. Veterans typically face lower out-of-pocket costs for care in VA than they would if they were privately insured. Lack of an affordable private insurance option is a key reason why Veterans enroll in VA.

## 4.4 Digital Access

As described in Section 1, digital access refers to connectivity that enables Veterans to engage in digital communications with providers, caregivers, peers, and computerized health applications. Section 3 described the range of digital services available within VA and rates of use of those services. Here, we describe the degree to which Veterans have access to digital channels of communication which enable them to access these services.

Thirty percent of Veterans responding to the 2013 Survey of Enrollees reported that they do not access the Internet. Of those Veterans who did report access, nearly 9 of 10 access the Internet from home, while the remainder accesses it from a variety of locations, including public libraries (2 percent). Interviews with VA health care providers and RAND analyses of Survey of Enrollees data suggest that older Veterans are significantly less likely to have Internet access. VA health care providers also note that older Veterans may lack knowledge required to access VA's digital services, such as VA's personal health record, MyHealtheVet, or telehealth. In the coming decades, Internet access and technological skill are likely to grow more common among Veterans, thereby increasing the acceptability and accessibility of digital health care services.

## **4.5 Cultural Access**

As noted in Section 1, cultural access refers to the acceptability of health services to the patient. Acceptability may be driven by factors that are similar for all Veterans, such as military culture, or may vary by Veteran characteristics, including sex, race, ethnicity, sexual orientation, gender identity, and medical diagnosis. Cultural acceptability of VA care varies by Veteran characteristics.

Some Veterans prefer to seek VA care because it provides them an opportunity to spend time with other Veterans. The sense of camaraderie that Veterans feel among other Veterans at VA facilities was one of the top 20 themes the RAND identified in analysis of online Yelp reviews of those facilities. Additionally, in interviews, administrators and health care workers emphasized the importance of Veterans receiving care from providers who understood their experience, and of VA's provision of services that provide a sense of a community for Veterans, such as events to welcome home returning service members. As of 2014, over half (55 percent) of Veterans responding to the Survey of Enrollees reported that they either completely agreed or agreed that Veterans like them like to go to VA because they like to talk to other Veterans. From 2010 to 2014, the percentage of Veteran enrollees who either completely agreed or agreed that VA health care providers treat them with respect declined from 88 to 81 percent. Some VA health care providers we interviewed noted that while efforts are being made to ensure that providers are sensitized to the unique experience of Veterans, more could be done to increase awareness of military-specific language and slang, as well as the changing demographics among Veterans.

Subgroups of Veterans that may face particular cultural barriers to access include racial and ethnic minorities, and groups that have traditionally been underrepresented in VA, such as women.

Experts have suggested that gender-sensitive comprehensive care for female Veterans includes provision of gender-specific care, such as female reproductive health services, awareness of best practices for management of women's health, and gender sensitivity, including attention to female Veterans' care preferences (deKleijn et al., 2015). With regard to provision of gender-specific care, increased attention to the needs of female Veterans has led to broad access to basic reproductive health services; however, access to more advanced services, such as gynecologic surgery and placement of contraceptives, is more variable by location (Washington, Yano, Goldzweig, & Simon, 2006; Yano et al., 2006; Seelig et al., 2008; Cordasco et al., 2013; Katon et al., 2013). With regard to gender sensitivity, VA health care workers indicated in interviews that additional steps could be taken by providers to ensure that female Veterans feel respected while receiving care in VA facilities. In keeping with these interview findings, female Veterans responding to the Survey of Enrollees are significantly less likely than male Veterans to agree that VA health care providers treat patients with respect.

Approximately 3–5 percent of Veterans report racial discrimination by health care providers; the proportion reporting perceived discrimination is similar among Veterans who use VA care and Veterans who use non-VA care (Hausmann et al., 2009). However, evidence regarding access to VA care for Veterans in various racial and ethnic groups is mixed. For example, studies



have reported that black Veterans were less likely than white Veterans to receive an effective treatment for severe depression (Pfeiffer et al., 2011) or heart drugs and procedures (Mehta et al., 2010) at VA facilities, while other studies have found comparable care for black and white Veterans at VA facilities with regard to timely colon cancer surgery (Robinson & Petzel, 2010) and total joint replacement (Hausmann et al., 2010). Earlier studies have found that Native American and Alaska Native Veterans report significantly more unmet health care needs than white Veterans (Kramer, 2009), and face unique challenges to access within VA, including assistance in coordinating care between VA and the Indian Health Service (Villa, Harada, & Huynh-Hohnbaum, 2010).

Observed racial and ethnic disparities in VA health care may be due, in part, to differences with regard to knowledge of medical information, trust in medical interventions and health care providers, participation in shared decision-making, level of social support, clinicians' judgment, and the quality of VA facilities attended (Health Services Research & Development Service, 2007).

Homeless Veterans treated at VA-staffed transitional residential treatment programs had similar patient satisfaction scores and outcomes at 12 months as Veterans treated at two community-based programs (McGuire, Rosenheck, & Kaspro, 2010), suggesting that VA care may be as acceptable to homeless Veterans as other alternative care settings.

Finally, with respect to sexual orientation and gender identity, one study found that lesbian, gay, and bisexual Veterans avoid seeking VA care due to concerns that they would be stigmatized for their sexual orientation (Simpson et al., 2013). In contrast, another study found a sharp increase in the number of transgender Veterans using VA care over the past several years, suggesting a response to a 2011 VA national directive to standardize treatment services for transgender Veterans (Kauth et al., 2014).

## 4.6 Section Conclusion

Although we did not find evidence of a system-wide crisis in access to VA care, our assessment found considerable variability across the different dimensions of access, including important barriers to be addressed.

**Geographic access.** Veterans are highly dispersed geographically throughout the United States, and ensuring nearby access to needed services for this population is difficult. Many Veterans have geographic access to VA care by a general standard of less than 40 miles distance from any facility, not considering the services available at that facility. However, geographic access is worse when using different types of access standards, such as reliance on public transportation. Geographic access to specialized facilities and providers is also lower. Ensuring geographic access to purchased care is also a challenge.

**Timeliness.** The average number of days that Veterans wait for appointments varies tremendously across VA facilities. Most Veterans complete their appointments within VA timeliness standards of within 30 days of the preferred date. However, Veterans who do not receive care within 30 days may be at risk of poor health outcomes. Further, VA's timeliness

standard is much less demanding than alternative standards that have been proposed in the private sector.

**Financial access.** VA is often Veterans' most affordable option for health care coverage. Veterans typically face lower out-of-pocket costs for care in VA than they would if they were privately insured. Lack of an affordable private insurance option is a key reason why Veterans enroll in VA.

**Digital access.** Many Veterans, especially older Veterans, do not have access to the Internet, and therefore cannot access VA's digital services. As younger Veterans age, Internet access and technological skill are likely to grow more common among Veterans, thereby increasing the acceptability of digital health care services.

**Cultural access.** Cultural acceptability of VA care varies by Veteran characteristics, including sex, race, ethnicity, sexual orientation, gender identity, and medical diagnosis. Some VA health care providers noted that, while efforts are being made to ensure that providers are sensitized to the unique experience of Veterans, more could be done to increase awareness of military-specific language and slang, as well as the changing demographics among Veterans.

When Veterans do access VA care, it is important that the care be of high quality. In the next section, we turn the focus to the quality of VA care.

## 5 Assessment of Quality of VA Care

Assessing the quality of VA care is an integral part of assessing Veterans' access to care. In a memorandum to VA leadership, the Interim Under Secretary for Health for VA described the purpose of the independent assessments of the Veterans Affairs Health Care Delivery systems and Management Processes collectively as a comprehensive evaluation of "VA's ability to deliver high-quality health care to Veterans" (Clancy, 2014). As a result of this emphasis on high-quality care for the assessments, RAND designed Assessment B to characterize current VA quality of care by conducting a systematic review of previous studies of VA quality compared with non-VA providers and comparing VA and non-VA performance on quality measures.

In this section, we present the findings from our assessment of the quality of health care provided by VA to Veterans. We organize results according to the domains of quality outlined by the Institute of Medicine (safety, timeliness, equity, effectiveness, efficiency, and patient-centeredness) and described in Subsection 1.4.2 of this report. These domains are defined as follows (Institute of Medicine, 2001):

- Safety: Avoiding injury to patients from the care intended to help them
- Timeliness: Reducing wait times for both providers and patients
- Equity: Providing care that does not vary in quality because of personal characteristics such as gender, race/ethnicity, and socioeconomic status
- Effectiveness: Providing evidence-based services to those who could benefit, and not giving services to those unlikely to benefit
- Efficiency: Avoiding waste, including waste of equipment, supplies, ideas and energy
- Patient-centeredness: Providing care that is responsive to individual patient preferences, needs and values.

For each domain, we summarize the results of published studies that compare the quality of care provided by VA and non-VA health care systems, and present the results of our analyses of the latest data on VA performance on quality measures. We show how VA is performing at the national level and how performance varies at the facility level and, whenever possible, indicate how VA performance compares to non-VA care.

A summary of the methods used in these analyses is shown in the box.

**Overview of Methods and Data for Assessment of Quality of VA Care**

- We conducted a systematic literature review to examine how the quality of VA care compares to non-VA care.
- Safety of care focused on adverse events in the inpatient setting and was measured using AHRQ Patient Safety Indicator data from VA and CMS Hospital Compare.
- Effectiveness of outpatient care focused on screening, prevention, and wellness; chronic condition management; comprehensive diabetes care; cholesterol management for patients with cardiovascular conditions; and antidepressant medication management; and was measured using HEDIS quality measure data from VA and NCQA. We compared VA performance rates with those for commercial, Medicaid, and Medicare health plans, as reported by the NCQA State of Health Care Quality Report.
- Effectiveness of inpatient care focused on care processes for selected conditions (for example, ORYX measures for acute myocardial infarction, pneumonia, heart failure) and was measured using data from CMS Hospital Compare for VA and non-VA facilities.
- Patient-centeredness of care focused on Veterans' reports of outpatient and inpatient care experiences (for example, communication with health care providers and staff, self-management support) and was measured using data from VA SHEP PCMH, VA inpatient SHEP, and CMS Hospital Compare.
- We compared mean performance and analyzed variation in quality measures across VA facilities and non-VA facilities.
- For complete details of the methods used to assess quality of VA care, please refer to Section 2 and Appendix A, Subsection A.5.

**5.1 Evidence from Previous Studies of Quality of VA Care**

Below, we present results from 34 studies on safety, one on timeliness, four on equity, 24 on effectiveness, nine on efficiency, and five on patient-centeredness. We organize the results in this subsection by these dimensions, with findings from some articles appearing in multiple subsections (if the article covers multiple quality dimensions). All of the results summarized below are adjusted for some combination of risk, comorbidities, demographics, or other variables when appropriate, unless otherwise specified. This systematic review updates a previous systematic review that compares the quality of care delivered in VA versus non-VA performed on this topic (Asch et al., 2010). Therefore, we chose to build on this work using consistent methods, including the same search terms (see Appendix A for detailed methods). All studies included in the previous review published after 2005 are also included in the current review.

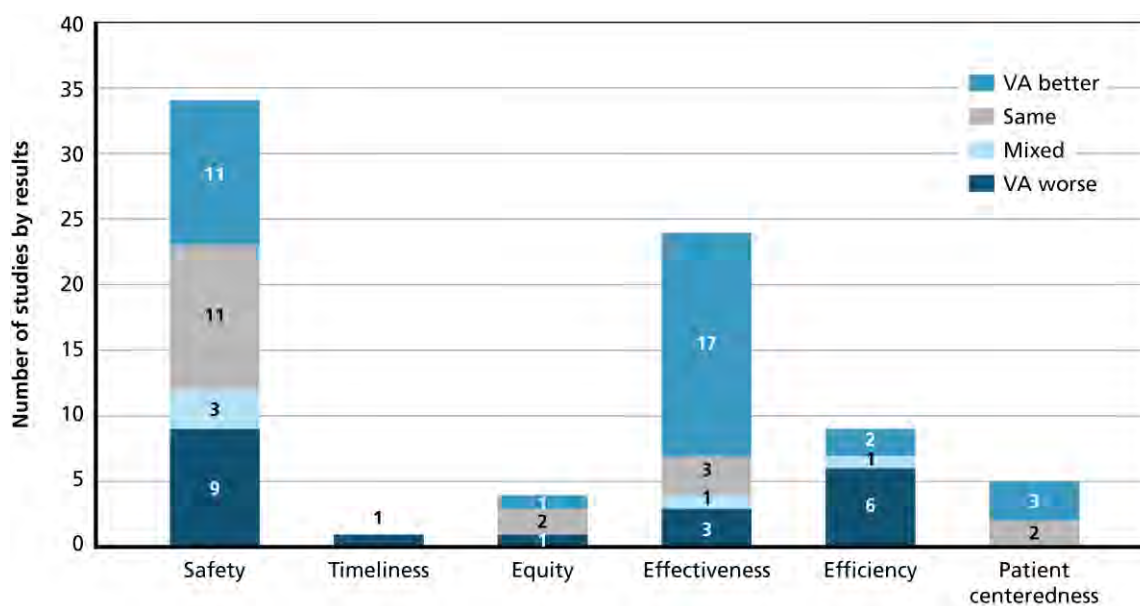
We classified each study in the review according to the statistically significant differences in performance on quality of care measures for VA care relative to a non-VA comparison group (Figure 5-1). If VA quality of care was shown to be better than quality for non-VA care, the study

was classified as “VA better.” If multiple results were reported for a study and VA quality of care was better in some instances and the same in other instances compared with non-VA care, the study was also classified as “VA better.” If multiple quality measures were reported in the study and VA care was better than non-VA on some and worse on others, the study was classified as “mixed.” If the quality of care in VA and non-VA did not differ, the study was classified as “same.” If VA quality of care was shown to be worse than non-VA, the study was classified as “VA worse” (as were studies with multiple results reported where the quality of care was worse in some instances and the same in other instances).

VA facilities performed inconsistently in studies related to safety, with 11 studies showing better performance, 11 showing same performance, three showing mixed performance, and nine showing worse performance (Figure 5-1). Only one study assessed timeliness of care in VA facilities, showing worse performance than the non-VA facilities. In terms of equity, VA settings demonstrated better performance in one article, same performance in two articles, and worse performance in one article compared with non-VA settings. VA facilities performed well in studies of effectiveness, with 17 studies showing better performance, three showing same, one mixed, and three worse. The articles (nine) that evaluated measures of efficiency, such as hospital length of stay, demonstrated better (two), mixed (one), or worse (six) performance in VA facilities compared with non-VA facilities. Only five articles looked at patient-centeredness quality measures, but all demonstrated better (three) or same (two) VA care quality compared with care in non-VA settings.

In the following subsections, more information is provided about these studies. Almost all the studies compare Veterans receiving VA care with individuals who are not identified as Veterans in the studies (referred to as “non-Veterans”) and who received care outside of the VA system (referred to as “non-VA care”). However, a few studies are included that compare Veterans receiving VA care with Veterans receiving non-VA care. These two types of studies differ in terms of the similarity of the characteristics of the comparison populations. The first group of studies compares Veterans and non-Veterans, so the patients may differ in ways related to the Veteran experience. The second group of studies compares Veterans receiving two types of care, so they may be similar in ways related to the Veteran experience. Therefore, we labeled these clearly to alert the reader to the difference.

**Figure 5-1. Number of Studies in Systematic Review, by Quality Dimension and VA Performance, Compared with Non-VA**



Source: RAND systematic review of studies on quality of care in VA compared with non-VA settings.

Notes: Categories are defined as follows: VA better = VA quality of care shown to be better than non-VA, or a mix of same and better; mixed = for studies with multiple quality measures, VA care was better than non-VA on some and worse on others; same = quality of care in VA and non-VA did not differ; VA worse = VA quality of care was shown to be worse than non-VA, or a mix of worse and same.

### **5.1.1 Safety of Care in VA Compared with Non-VA**

Safety measures focus on topics related to avoiding injuries to patients from the care that is intended to help them, such as complications following surgical procedures. Also included in this category are mortality rates among those receiving care in VA or non-VA settings. In 22 of 34 comparisons, VA generally performed as well as or better than other settings in terms of complications, morbidity, and mortality. VA patients fared worse in nine studies and had mixed experience (some better and some worse) in three studies.

Surgical complication rates were similar among Veterans at VA and non-Veterans receiving non-VA care following several types of surgery (Boitano, Wang, & Kibbe, 2012; Henderson et al., 2007; Weiss et al., 2006). Lower mortality and higher complication rates were observed for cataract surgeries for Veterans who are VA patients compared with Veterans who are Medicare fee-for-service beneficiaries (French & Margo, 2012; French et al., 2012b). Postoperative morbidity was lower for VA patients compared with non-Veterans receiving non-VA care (Fink et al., 2007; Hutter et al., 2007; Johnson et al., 2007). In several studies, morbidity after several types of surgery did not differ between VA patients and non-Veterans receiving non-VA care (Hall et al., 2007; Lancaster et al., 2007; Lautz et al., 2007; Neumayer et al., 2007; Turrentine et al., 2007), but was worse for VA patients overall (Glasgow et al., 2007) and male VA patients (Lautz et al., 2007). In studies comparing quality of care for Veterans receiving VA care and non-VA care, Veterans residing in VA nursing homes were less likely to develop a pressure ulcer than Veterans in community nursing homes (Berlowitz et al., 2005). VA hospitals were more likely to follow best practices in the use of central venous catheter bloodstream infection prevention compared with non-VA hospitals (Krein et al., 2007). Performance on AHRQ's patient safety indicators was found to be a mix of higher, lower, and similar rates at VA hospitals compared with non-VA hospitals (Rosen et al., 2005; Weeks et al., 2008b; Rivard et al., 2010). Among all kidney transplant recipients, VA patients had a higher risk for graft failure than non-Veterans receiving non-VA care (Chakkerla et al., 2004).

Mortality rates associated with specific conditions (Fihn et al., 2009; Landrum et al., 2012; Tarlov et al., 2012) or following surgical procedures (Bilimoria et al., 2007; Boitano, Wang, & Kibbe, 2012; Choi et al., 2009; Fink et al., 2007; Hutter et al., 2007; Weiss et al., 2006) were similar for Veterans receiving VA care compared with non-Veterans receiving non-VA care. Rates of mortality declined more quickly in VA over time than in non-VA settings (Borzecki et al., 2010). Veterans treated in VA and non-VA settings also experienced similar mortality rates (Wang et al., 2013a; Berlowitz et al., 2005). Adjusted mortality was lower among Veterans who used VA care compared with male Medicare Advantage beneficiaries over 65 years of age (Selim et al., 2010; Selim et al., 2009; Selim et al., 2006; Selim et al., 2007). Mortality after some surgeries was higher among VA patients compared with non-Veterans receiving non-VA care (Campling et al., 2005; Chakkerla et al., 2004; Glasgow et al., 2007; Henderson et al., 2007; Vaughan-Sarrazin, Wakefield, & Rosenthal, 2007) and after other surgeries, similar (Vaughan-Sarrazin, Wakefield, & Rosenthal, 2007). Mortality within one year of admission after hip fracture was 21 percent lower among Veterans admitted to non-VA hospitals compared with Veterans admitted to VA hospitals (Richardson et al., 2013).

### **5.1.2 Timeliness of Care in VA Compared with Non-VA**

Only one study addressed timeliness of care in VA facilities relative to non-VA facilities. This study observed a significantly shorter time between hospital admission for hip fracture and surgical repair of hip fracture for Veterans admitted to non-VA hospitals compared with VA hospitals (Richardson et al., 2013); the shorter time interval indicates the care was better in non-VA hospitals.

### **5.1.3 Equity of Care in VA Compared with Non-VA**

Equity measures focus on comparing quality between patients with different personal characteristics, such as females compared with males. VA performance on equity measures was better than or the same as non-VA care, in three studies comparing disparities within VA patients and non-VA patients; one study showed worse performance. In the largest study, Trivedi et al. (2011) observed significantly narrower income and educational disparities for nine of 12 quality measures assessing diabetes, cardiovascular, and cancer screening care in VA patients compared with Medicare Advantage enrollees. Polsky et al. (2007) found the patterns of racial differences in 30-day mortality rates after hospital admission for several conditions were similar for Veterans in VA hospitals and non-Veterans in non-VA hospitals, with African Americans age 65 years and older having significantly reduced odds of 30-day mortality for almost all conditions. (Chakkerla et al., 2004) showed that African-American race was associated with an increased risk of graft failure, a pattern observed among both Veterans receiving VA care and all patients receiving non-VA care. One study had worse results. In a study of end-of-life care for older cancer patients, Keating et al. (2010) found no significant differences between African-American and white patients in chemotherapy use and ICU admissions for either VA or Medicare patients, but African Americans were more likely than whites to have more than one emergency room visit in the last month of life in the VA cohort than in the Medicare cohort.

### **5.1.4 Effectiveness of Care in VA Compared with Non-VA**

Most studies demonstrated better effectiveness of care (provision of recommended care) for VA compared with non-VA care, particularly for outpatient care. VA care outperformed non-VA care for non-Veterans on effectiveness of care measures for chronic conditions (Trivedi et al., 2011; Weeks et al., 2009b). Receipt of diabetes education (Nelson et al., 2005) was higher among VA patients compared with Veterans in non-VA care. VA patients were more likely than Veterans not receiving any care at VA to receive recommended care (Lynch, Strom, & Egede, 2010; Ross et al., 2008),<sup>58</sup> a routine checkup within the past two years (West et al., 2006), and influenza and pneumonia vaccinations (Chi, Reiber, & Neuzil, 2006; Jha, Wright, & Perlin, 2007; Keyhani et al., 2007)<sup>59</sup>, but the two groups had similar rates of serum cholesterol screening

---

<sup>58</sup> Ross (2008) did not specify whether the non-VA comparison group was composed of non-Veterans, Veterans, or a combination of the two.

<sup>59</sup> Jha (2007) did not specify whether the non-VA comparison group was composed of non-Veterans, Veterans, or a combination of the two.



(Keyhani et al., 2007). Obese VA patients were more likely to have received advice to lose weight than Veterans and non-Veterans receiving non-VA care and equally likely to have received professional advice to maintain weight (Wang et al., 2005). Blood pressure control was higher among African-American patients receiving VA care than non-VA care (Rehman et al., 2005). The structure of women's health care differed at VA women's health centers and non-VA care sites: Preventive cancer screening and general reproductive services were available at all centers, while VA centers were less likely to offer extensive reproductive services on-site but more likely to offer on-site mental health care (Bean-Mayberry et al., 2007). Liu et al. (2008b) compared Veterans receiving primary care at VA-staffed versus contract community clinics and found that diabetic patients at VA-staffed clinics were less likely to receive a retinal exam and chronic obstructive pulmonary disease patients at VA-staffed clinics were less likely to receive a flu shot.

Elderly VA patients were less likely to receive inappropriate medication than were patients in Medicare HMOs (Barnett et al., 2006a), and VA patients with acute myocardial infarction were more likely to receive appropriate medications than were non-VA patients (Bansal et al., 2005). Observed compliance by providers with erythropoietin administration guidelines was higher at VA than in the private sector (Hynes et al., 2007). Antibiotic prescribing practices were generally similar between VA and non-VA emergency departments, but a few VA sites had much higher rates of antibiotic prescriptions (Gonzales et al., 2006).

In non-ambulatory settings, VA care was generally more effective than or the same as care provided by non-VA providers in most studies. Compared with non-VA patients from the Medicare cancer patient database, VA patients had earlier diagnosis of colon and rectal cancers, higher rates for three quality measures, similar rates for nine, and lower rates for one (Keating et al., 2011). Male VA patients and Medicare patients with lung and colorectal cancer were compared, and VA patients were less likely to receive chemotherapy within 14 days of death or to be admitted to an ICU within 30 days of death, and were similarly likely to have more than one emergency room visit within 30 days of death (Keating et al., 2010). Comparison of an academic practice and a VA hospital found that appropriate use of stress/rest myocardial perfusion imaging studies did not differ between settings (Nelson, Willens, & Hendel, 2011). Rates of hemodialysis via arteriovenous fistulas (which are preferred by guidelines over other methods) among VA patients and Medicare patients were not different when pre-end-stage renal disease care was accounted for (Parikh et al., 2011). Among Veterans who died in VA facilities, palliative care consults and death in a dedicated palliative care, hospice unit, or intensive care unit were more common, and death in a nursing home was less common than among Veterans who died in non-VA facilities (all unadjusted results) (Lu et al., 2010). VA-insured and Medicare/Medicaid-insured patients were less likely to receive kidney transplants than were patients with private insurance (Gill et al., 2007). Eight of 15 clinical pharmacy services were more commonly provided in VA hospitals than non-VA hospitals (Bond & Raehl, 2007).

Although not part of the systematic review because it was not published in the peer-reviewed literature, an Altarum/RAND study of VA quality of care for mental health conditions (Sorbero et al., 2010; Watkins et al., 2011) showed that VA care performed significantly better than the private plans on assessment measures and medication-management measures. The private

plans exhibited significantly higher rates of engagement for two measures related to treatment for substance use disorders.

### 5.1.5 Efficiency of Care in VA Compared with Non-VA

Studies of VA compared with non-VA care found VA to be less efficient. Nine articles compared utilization, all of which adjusted for differences in patient characteristics. Inpatient length of stay was generally longer in VA facilities, and the risk of hospitalizations and emergency visits was also generally higher. Mean length of stay among female Veterans was significantly longer for VA hospitals than private-sector hospitals even after adjustment for patient differences (Mooney & Weeks, 2007). Weeks et al. (2008a) identified Veteran stays in VA and non-VA hospitals and found longer length of stay for VA hospitalization even after adjusting for patient characteristics. Berke et al. (2009) found that Veterans admitted to VA hospitals had longer length of stay than expected after adjustment, compared with Veterans in non-VA hospitals.

In terms of other types of utilization, Wang et al. (2013b) found that Veteran patients who exclusively received dialysis at VA-outsourced settings were less likely than Veteran patients exclusively receiving VA dialysis to be hospitalized within a year, and had shorter length of stay than VA users. Hynes et al. (2011) compared VA hemodialysis patients with private-sector hemodialysis patients and found that VA patients had more non-dialysis outpatient visits, emergency room visits, 30-day supplies of prescriptions, inpatient admissions for acute medical or surgical care, and hospital days, but no difference in non-acute admissions and days of care. Liu et al. (2009) found that depressed Veterans who were dual VA/non-VA patients had a significantly higher chance of having an emergency visit and any inpatient admission than those exclusively receiving VA care. Liu et al. (2008) found that Veterans who received primary care at non-VA contract community clinics compared with Veterans at VA-staffed community clinics had fewer primary care and laboratory visits, but no significant differences in numbers of visits for specialty care, mental health care, radiology, or inpatient admission. Borzecki et al. (2010) found appendectomy utilization rates declined more rapidly, laparoscopic cholecystectomy rates rose more steeply, and bilateral catheterization rates decreased more slowly over time for VA patients compared with a national sample of hospitalized patients. (Gellad et al., 2013) found that VA patients used fewer brand-name drugs than Medicare patients, and that per capita volume of prescriptions filled was slightly lower among Medicare patients than VA patients.

As noted in the Methods Overview in Section 2, comparisons of costs in VA compared with non-VA settings are subject to a number of limitations; therefore, results related to cost of care are not presented.

### 5.1.6 Patient-Centeredness of Care in VA Compared with Non-VA

Based on studies published in the peer-reviewed literature, performance, on patient experience measures was comparable or better for patients receiving care at VA facilities compared with non-VA providers. Only five studies examined this dimension. Belote, Fulton, and Brooks (2012) found that Veteran patients rated outpatient care received at VA-staffed CBOCs more highly based on measures of continuity of care, education and information, emotional support, overall

coordination, and patient preferences compared with outpatient care provided at contractor-staffed CBOCs. Lu et al. (2010) observed that families of Veterans who died in a VA facility rated care and services during the patient's last month of life more highly than families of Veterans who died in non-VA settings. Another study (Cox, Alexander, & Gray, 2005) found greater satisfaction with hearing aid fittings and perceived benefit from hearing aid placement among Veterans in a VA facility than from non-Veteran patients. As noted in Section 4, Hausmann et al. (2009) concluded that perceptions of racial discrimination when seeking health care were similar between Veterans who were users of VA care and Veterans who were users of non-VA care, and McGuire, Rosenheck, and Kaspro (2010) found that homeless Veterans treated at VA-staffed transitional residential treatment programs had similar outcomes and patient satisfaction scores at 12 months compared with Veterans treated at two community-based programs.

Although not part of the systematic review because it was not published in the peer-reviewed literature, a report of results from the 2013 American Customer Satisfaction Index suggests that satisfaction with VA facilities is better than satisfaction with hospitals in the private sector, although results are not adjusted for patient characteristics that may differ between VA and non-VA facilities (American Customer Satisfaction Index, 2014).

### 5.1.7 Subsection Summary

The findings of previous studies comparing quality of care provided in VA settings compared with non-VA settings varied by quality domain. Studies of safety and effectiveness indicated mixed performance, with 22 of 34 studies of safety and 20 of 24 studies of effectiveness showing quality of care was the same or better in VA facilities. Only five articles assessed patient-centeredness but all demonstrated better or same VA care quality compared with care in non-VA settings. Four studies focused on equity, with one showing better performance, two same, and one worse performance compared with non-VA settings. The nine articles evaluating measures of efficiency such as hospital length of stay demonstrated more mixed or worse performance in VA facilities compared with non-VA facilities, with only two showing better performance. Only one study assessed timeliness of care in VA facilities, showing worse performance than the non-VA facilities.

## 5.2 VA Measurement of Quality of Care

As one of the largest health care providers in the United States, VA has assumed a national leadership role in the quality measurement arena. VA's efforts to measure the quality of care provided to Veterans began before those of many other health care organizations, and VA sets high standards for both measuring and improving quality (Jha et al., 2003; Kizer & Dudley, 2009).

VA currently uses multiple quality monitoring systems—tailored for different care settings and audiences—to collect and report information about the health of Veterans and the care provided to them. Among these systems is ASPIRE, which is considered by the Institute of Medicine to be one of several sentinel quality measurement initiatives that “identified a limited set of measures from a larger pool” (Institute of Medicine, 2015). ASPIRE is part of the VA

Transparency Program, which offers publicly available information on the VA Hospital Compare website about how VA is performing relative to other health care organizations across the country. ASPIRE presents information about all aspects of quality, including preventive care, care recommended for acute and chronic conditions, complications and outcomes of care, and patient-reported measures of health care experiences at the national, regional, and local levels of the VA system. VA's ASPIRE is working to develop a quality measurement and reporting model that is more streamlined and focused on what VA considers to be the most important aspects of quality.

In addition to the measures provided by ASPIRE, VA has more than 500 other quality measures that can be used by VISN and facility administrators and providers to monitor quality of care regionally and locally and to inform quality improvement projects. In addition, the VA Office of Mental Health Operations has developed more than 240 measures focused on conditions related to mental health, including post-traumatic stress disorder and depression. These measures are part of an extensive infrastructure within VA for performing quality improvement and research on quality of care. VA offers unique research opportunities, with clinical data available on 6 million enrollees through its electronic health record system, CPRS/VistA (Fihn et al., 2014), including developing and testing new quality measures and examining the relationship between evidence-based care and clinical outcomes.

By all accounts, VA has an extensive set of measures for most conditions and purposes. Across the U.S. health care system, quality reporting requirements have expanded and measurement has become more complicated, resulting in a huge commitment of staff time and funds to comply (Institute of Medicine, 2015). Some have argued that a proliferation of performance measures within VA has led to a lack of focus on what is truly important (Kizer & Jha, 2014).

In interviews, VA administrators and several health care workers noted that attention to quality measurement has led to positive changes in care delivery, particularly by directing attention to conditions for which there are quality measures. For example, one facility uses quality measurement data to identify high-risk patients for more-intensive case management. Another facility initiated patient education in response to high readmission rates and was successful at lowering readmissions. Furthermore, attention to measuring access and quality also appeared to improve coding and documentation. However, several respondents interviewed felt that measuring quality did not always have a positive effect on how facilities deliver care. For example, one respondent said that everyone is "so focused on the numbers that we lose sight sometimes of the process that we're trying to deliver." Others explained that the current list of access and quality measures is "just too long" and the measurement process is a burden for VA providers and other staff members. In addition, one respondent reported that some individual program offices generate their own sets of measures independently, ultimately adding to the already large number of measures.

In the subsections below, we report how VA has performed on commonly used, accepted measures developed by leading health care organizations. We analyzed quality measures for VA care and compared them to the same quality measures for comparable non-VA providers. The measures are described in Subsection 2.6.3, Methods Overview. The measures are a subset of publicly reported VA quality measures, selected because of the availability of non-VA

comparisons. We describe the non-VA comparisons used below in the discussion of each subset of quality measures.

### 5.2.1 VA Performance on Quality Measures Compared with Non-VA

Our analysis of quality measure performance indicated that, on most publicly reported measures, on average, the quality of VA outpatient care was better than the quality of non-VA outpatient care, and, on average, the quality of VA inpatient care was the same as or better than the quality of non-VA inpatient care. Some measures of patient experience and three measures of readmission indicated lower quality, on average, at VA hospitals than non-VA hospitals. These findings are based on our analysis of quality of care for many types of care provided in the inpatient and outpatient settings.

We analyzed a total of six quality measures on inpatient safety, six on inpatient safety outcomes, 30 on effectiveness (14 inpatient and 16 outpatient), and 11 on patient-centeredness for the inpatient setting. Measures of efficiency, equity, and timeliness were not analyzed because similar measures were not available for non-VA providers. For each quality measure, we conducted descriptive analyses of the performance rates available at the facility level, noting the variation in performance across facilities nationwide. We summarized the distribution of each measure using the mean, minimum, and maximum. The performance rates for the quality measures reported in Section 5 and in the Appendix G tables were each calculated as an unweighted mean of the facility-level means.<sup>60</sup> We classified the results of the analysis according to statistically significant differences in quality of care measures for VA care relative to the non-VA comparison group. We used the same dimensions of quality to classify the results that we used in the systematic review (see introduction to Subsection 5.1).

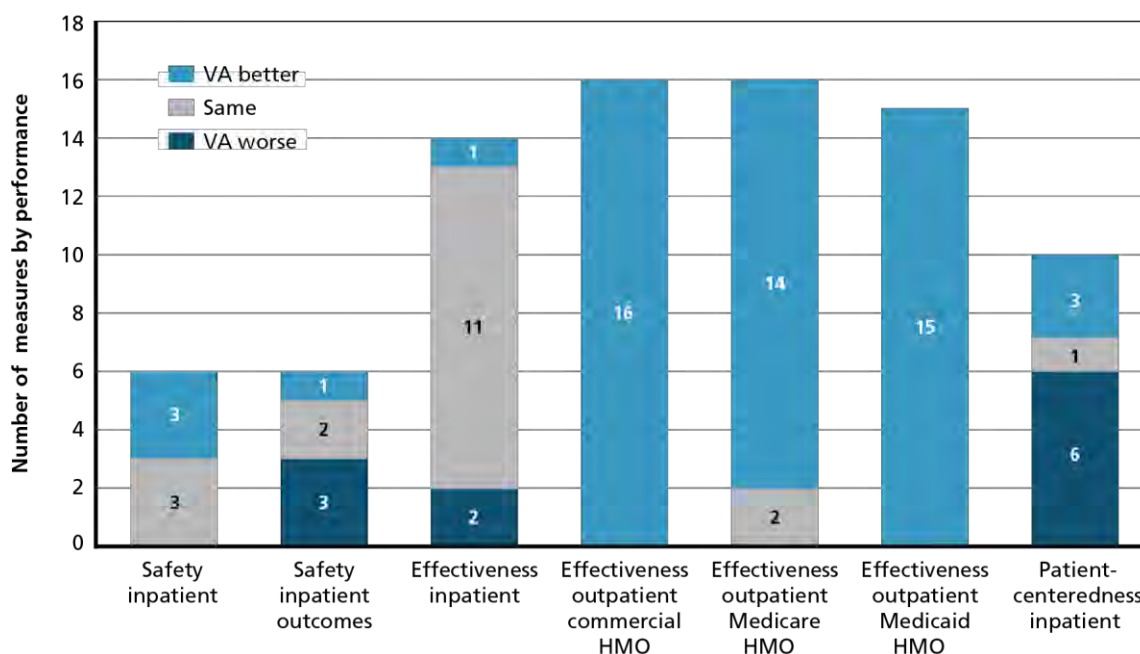
The average performance of VA facilities was the same or significantly better than the average performance of non-VA care on the majority of quality measures analyzed for inpatient and outpatient settings (Figure 5-2). On average, VA hospitals performed the same as or significantly better than non-VA hospitals on 12 inpatient effectiveness measures, all six measures of inpatient safety, and all three inpatient mortality measures, but significantly worse than non-VA hospitals on two effectiveness measures and three readmission measures. VA performed significantly better, on average, on all 16 outpatient measures of effectiveness compared with commercial HMOs, on 14 of 16 outpatient effectiveness measures compared with Medicare HMOs, and on all 15 outpatient measures of effectiveness compared with Medicaid HMOs. Veteran-reported experiences of care in VA hospitals were worse than patient-reported experiences in non-VA hospitals on most measures. Average VA facility-level performance was significantly worse than non-VA facilities for six out of 10 patient experience measures, including communication with nurses and doctors. Although these results indicate

---

<sup>60</sup> The value of mean measure rates calculated for this report may differ slightly from means reported in VA publications for the same time period, due to differences in methods used to calculate the means. For this report, we calculated an unweighted mean of facility-level means, whereas VA calculates a national mean value for each performance measure based on patient-level data.

strong performance by VA facilities, considerable variability across facilities was observed in all quality measures, indicating substantial room for improvement in the performance on quality measures and inpatient experience measures for many VA facilities. In the following subsections, more information is provided about the analyses underlying these findings.

**Figure 5-2. VA versus Non-VA Quality of Care, by Type of Quality Measure**



Source: RAND summary of results of VA to non-VA comparisons. Data sources for analyses conducted by RAND are provided in figure notes throughout this section.

Notes: Categories are defined on the basis of statistical tests for difference in means with  $P < 0.05$  or less: VA better = VA quality of care shown to be better than non-VA; same = quality of care in VA and non-VA did not differ; VA worse = VA quality of care was shown to be worse than non-VA. Non-VA comparison data were not available for outpatient measures of patient-centeredness.

### 5.2.1.1 VA Compared with Non-VA Performance on Patient Safety Measures for Inpatient Setting

For inpatient quality measures, we compared performance rates for VA hospitals and non-VA hospitals. To ensure optimum comparability between VA and non-VA facilities in our analysis, we matched three non-VA facilities to each VA facility based on four facility characteristics: bed size, Census division, urban/rural location, and teaching hospital status.<sup>61</sup> We present measure

<sup>61</sup> A description of how we identified a matched set of non-VA comparator hospitals is provided in Section 2. Teaching facilities are defined to include all major and minor teaching hospitals, with a major teaching hospital

rates for VA and non-VA facilities side-by-side with a line indicating the minimum and maximum measure rate for each subgroup. In this subsection, results are presented for comparisons of VA facilities and matched non-VA hospitals for patient safety indicators. We used data on a standard set of AHRQ measures to assess how often adverse outcomes of care occur in the inpatient hospital setting. This included data on patient safety indicators obtained from the VA Inpatient Evaluation Center (VA facilities) and CMS Hospital Compare (non-VA facilities) and data on risk-standardized readmission and mortality rates obtained from CMS Hospital Compare (all facilities). For this set of measures, a lower rate indicates better performance. The number of VA and non-VA hospitals in the figures varies from measure to measure, due to the reporting criteria used by CMS Hospital Compare (see Appendix A for more detail).

The patient safety measures (Figure 5-3) are rates of complications or adverse events per 1,000 patients undergoing specific treatment or procedures. These complications occur infrequently, with the mean facility-level rates ranging from a minimum of 0.4 per 1,000 in both VA facilities and matched non-VA facilities for iatrogenic pneumothorax, to a maximum of 3.3 per 1,000 in VA facilities, and 4.6 per 1,000 in matched non-VA facilities for postoperative pulmonary embolism or deep vein thrombosis. Three measures were significantly lower (that is, performance was better) in VA facilities than in matched non-VA facilities: death following surgical complications (data not shown in Figure 5-3), postoperative pulmonary embolism or deep vein thrombosis rate, and accidental puncture or laceration rate. A substantial number of VA facilities reported no adverse events on these measures. For example, 12 of 101 hospitals reported no deaths among surgical inpatients with serious treatable complications, and 60 of 113 hospitals reported no patients with postoperative wound dehiscence (per 1,000). One patient safety measure not shown in Figure 5-3 is a composite measure that combines information from 11 patient safety indicator measures. The mean performance of this measure by facility for VA and non-VA inpatient care in FY 2014 was 0.9, indicating the rates of patient safety outcomes observed in these two subgroups of hospitals were less than expected, which is based on the rates for all hospitals in Hospital Compare (Figure 5-3). Rates varied widely across VA and non-VA facilities, as indicated by the lines extending from each bar representing the minimum and maximum values for each measure rate. Rates of postoperative pulmonary embolism or deep vein thrombosis exhibited the widest range for the 111 VA facilities (mean of 3.3 per 1,000, ranging from 0 to 14.6) and non-VA facilities (mean of 4.6 per 1,000, ranging from 1.4 to 15.1).

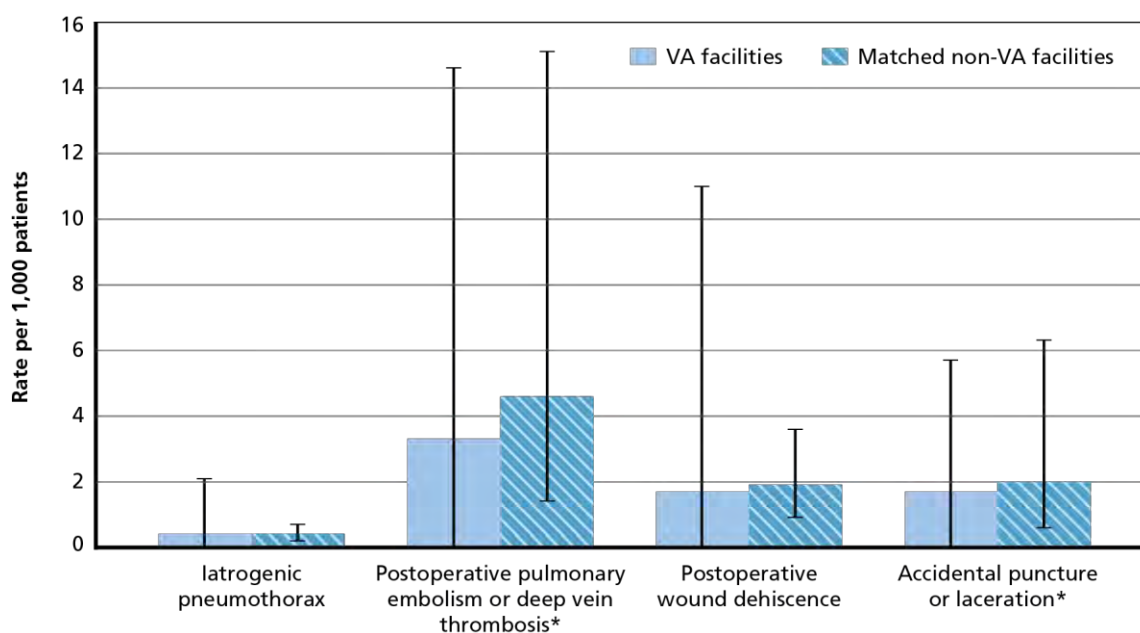
---

having a Council of Teaching Hospitals designation and a minor teaching hospital having another teaching hospital designation. Facilities without a teaching hospital designation are classified as non-teaching facilities.

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

**Figure 5-3. VA and Non-VA Performance on Patient Safety Indicator Measures for Inpatient Setting, FY 2014**



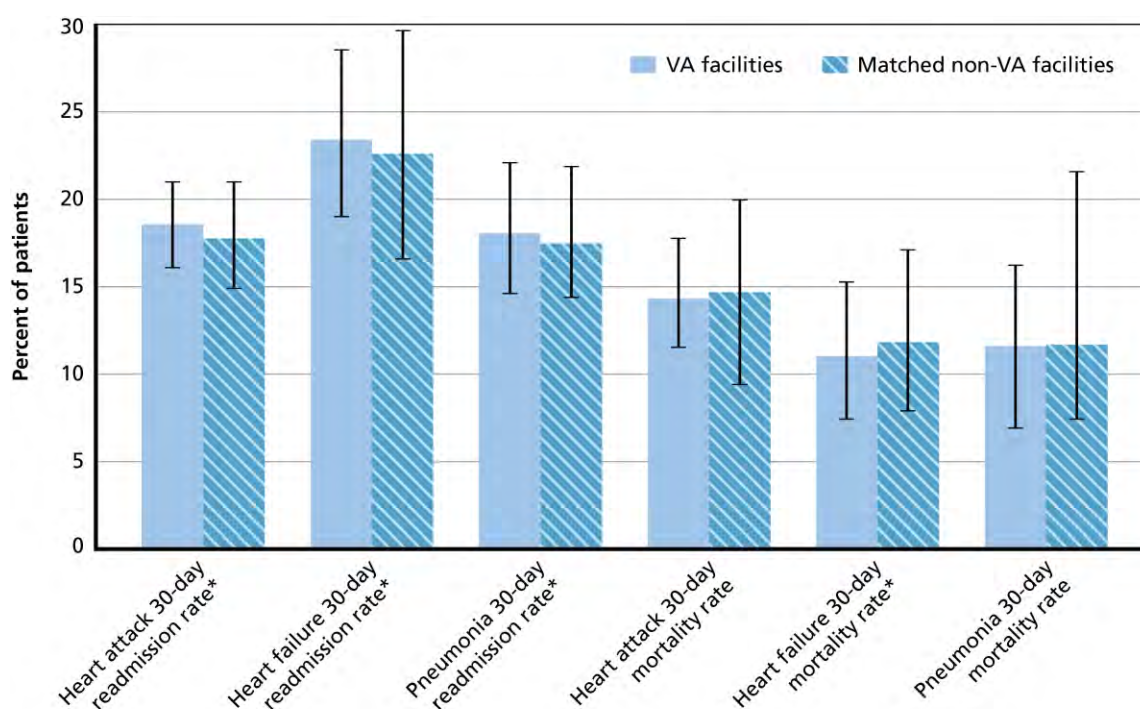
Sources: VA facility-level data for patient safety indicators were obtained from the VA Inpatient Evaluation Center for 2014. Non-VA facility-level data for patient safety indicator measures for Quarter 4 of FY 2014 were obtained from the CMS Hospital Compare website.

Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (\*) next to the measure name indicates a statistically significant difference between VA and non-VA performance. A lower rate on these measures indicates better performance. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

We compared mortality and readmission rates for VA facilities and matched non-VA facilities that are reported on the CMS Hospital Compare website (CMS, 2015) (Figure 5-4). The all-cause risk-standardized readmission and mortality rates for heart attack, heart failure, and pneumonia are adjusted for demographic characteristics and other medical conditions. The average all-cause risk-standardized rates of readmission within 30 days of discharge following heart attack, heart failure, and pneumonia were significantly higher (that is, significantly worse) than those in matched non-VA facilities (18.6, 23.4, and 18.1 per 1,000 in VA facilities versus 17.8, 22.6, and 17.5 per 1,000 in non-VA facilities, respectively). The facility-level mean all-cause risk-standardized mortality rate for heart failure within 30 days of admission was significantly lower (that is, significantly better) for VA facilities than for matched non-VA facilities. These all-cause risk-standardized rates varied widely for VA facilities, ranging from 15 to 29 percent for 30-day readmission rates and from 7 to 18 percent for 30-day mortality rates (Figure 5-4). Variability across the non-VA facilities was even higher.



**Figure 5-4. VA and Non-VA Performance on Readmission and Mortality Measures for Inpatient Setting, FY 2014**



Source: VA and non-VA facility-level data for readmission and mortality measures for Quarter 4 of FY 2014 that were obtained from the CMS Hospital Compare website.

Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (\*) next to the measure name indicates a statistically significant difference between VA and non-VA performance. A lower rate on these measures indicates better performance. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

## 5.2.2 Current VA Performance on Effectiveness Measures

### 5.2.2.1 VA Performance on Effectiveness Measures for Inpatient Setting

The ORYX process measures and Surgical Care Improvement Project measures assess how often recommended care is provided in the inpatient hospital setting of VA and non-VA facilities. These measures are used by the Joint Commission for hospital quality improvement and in their hospital accreditation process (The Joint Commission, 2015). The measures included in this report relate to heart attack, heart failure, pneumonia, and surgical care. The ORYX measure data were obtained from CMS Hospital Compare website (CMS, 2015). Individual measures

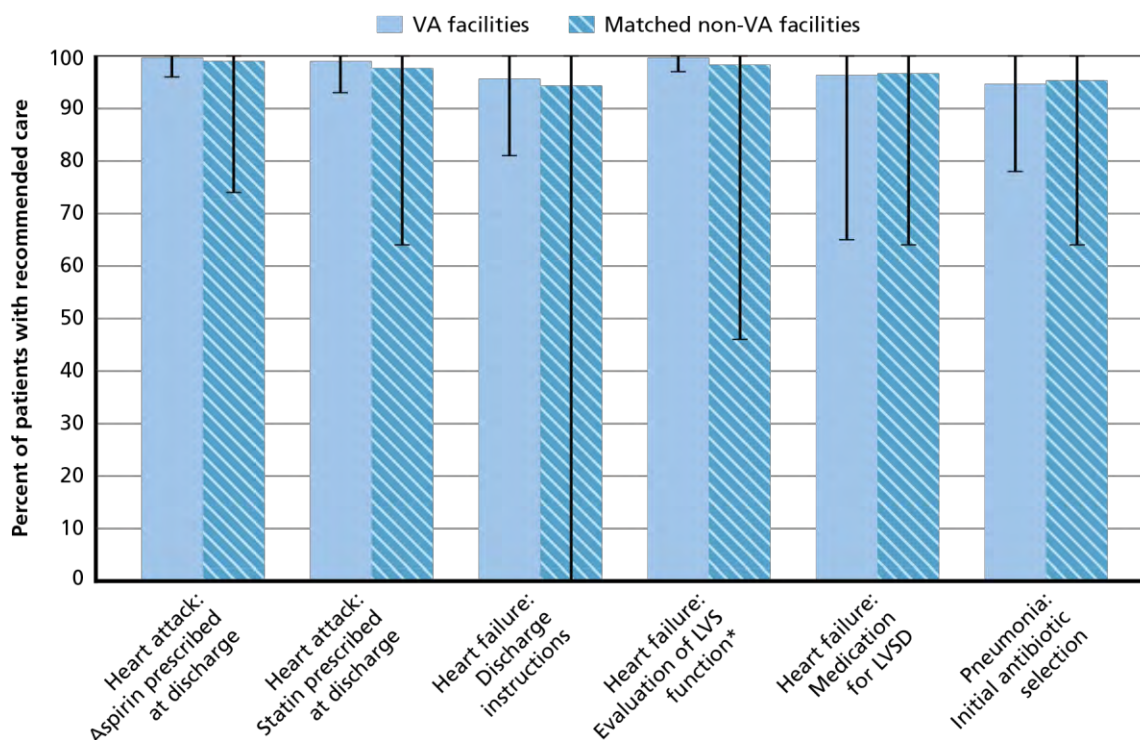
were reported to CMS Hospital Compare by different numbers of VA hospitals, ranging from eight to 118. Measures with data for fewer than 10 VA hospitals in FY 2014 were excluded from the analysis.<sup>62</sup>

For the six ORYX process measures for heart attack, heart failure, and pneumonia (Figure 5-5), inpatient care recommended by clinical practice guidelines was provided 95 percent of the time or more, on average, by VA and matched non-VA facilities. For five of six measures, VA and non-VA mean facility rates did not differ, but the rate of evaluation of left ventricular systolic function was significantly better in VA facilities. Many VA and non-VA facilities achieved a perfect score of 100 percent on these measures for providing appropriate care to hospitalized patients. Three of six of these measures had a wide range of values across VA facilities, from a 19- to 35-percentage-point difference between the lowest and highest facility, and for the other three measures a difference of 3 to 7 percentage points (see data in Appendix G for details). The measure rates for the matched non-VA facilities ranged even more widely with all six measures having at least a 26-percentage-point difference between the high and low value (Figure 5-5).

---

<sup>62</sup> For one effectiveness measure for the inpatient setting, timing of receipt of primary percutaneous coronary intervention, VA facilities had a significantly lower (worse) rate. However, we did not include this in Figure 5-5 because we excluded results based on fewer than 10 VA facilities.

**Figure 5-5. VA and Non-VA Performance on ORYX Process Measures for Inpatient Setting, FY 2014**

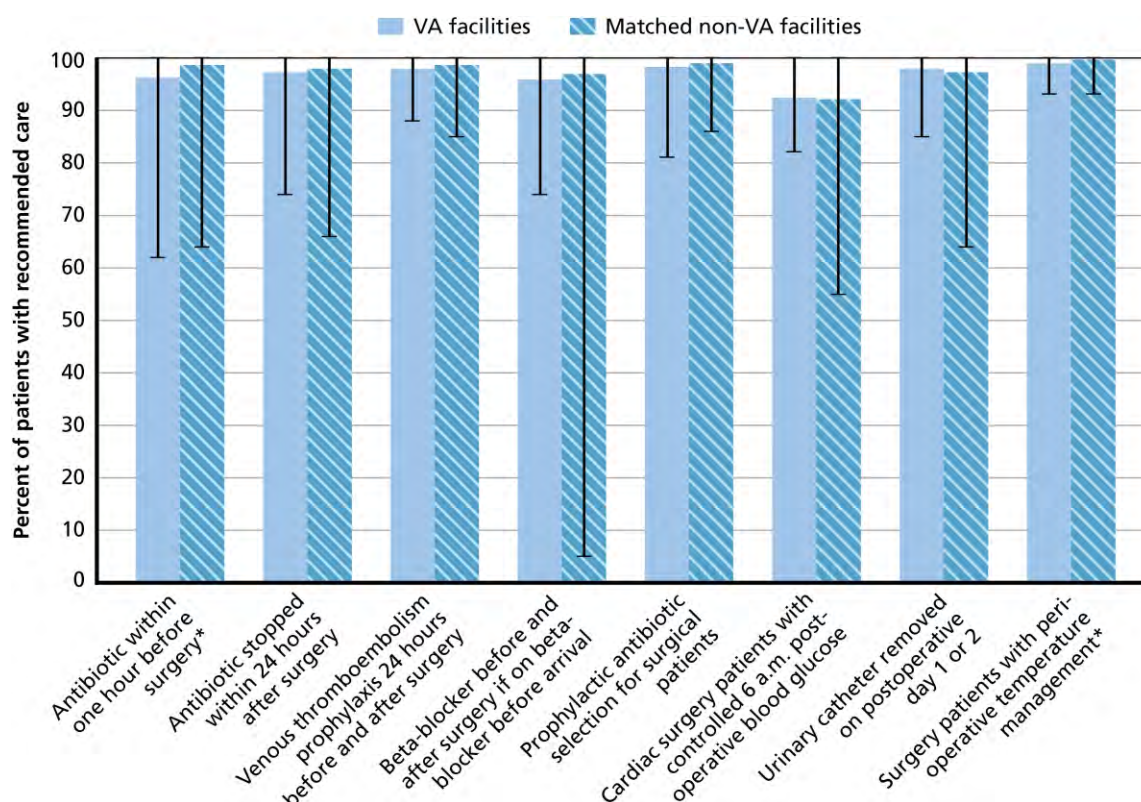


Source: VA and non-VA facility-level data for ORYX process measures for Quarter 4 of FY 2014 that were obtained from the CMS Hospital Compare website.

Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (\*) next to the measure name indicates a statistically significant difference. LVS = left ventricular systolic. LVSD = left ventricular systolic dysfunction. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

For the eight surgical care measures (Figure 5-6), recommended care was provided, on average, from 93 to 99 percent of the time by VA facilities and from 92 to 100 percent of the time in matched non-VA facilities. For two of eight measures (antibiotic within one hour before surgery, and surgery patients with perioperative temperature management), VA had significantly lower (worse) rates, and the other six rates did not differ. As with the ORYX measures, performance on these measures varied widely across VA facilities, with minimum rates of 62 to 93 percent and a maximum for all of these measures of 100 percent (see data in Appendix G for details). The range of values for the matched non-VA facilities was wider for all but one measure (Figure 5-6).

**Figure 5-6. VA and Non-VA Performance on Surgical Care Improvement Project Measures for Inpatient Setting, FY 2014**



Source: VA and non-VA facility-level data for Surgical Care Improvement Project measures for Quarter 4 of FY 2014 obtained from the CMS Hospital Compare website.

Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (\*) next to the measure name indicates a statistically significant difference. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

### 5.2.2.2 VA Performance on Effectiveness Measures for Outpatient Setting

We analyzed the quality of care for outpatient settings in VA facilities to observe variation across VA and non-VA facilities and to compare to performance in non-Veteran populations. We used a set of standard HEDIS outpatient measures to show how often evidence-based health care practices are followed and clinical outcomes of care occur. HEDIS measures are employed by many health care organizations in the United States to monitor performance on important aspects of health care as well as provider and plan service in the outpatient setting. HEDIS measures included in this report relate to screening, prevention, and wellness; and

management of chronic medical conditions, such as diabetes, hypertension, cardiovascular disease, and depression. The target rate for HEDIS measures is 100 percent.<sup>63</sup>

Based on the latest available rates (FY 2014) from VA facilities, we estimated the mean performance and how much VA performance varies by facility (Table G-1 in Appendix G). These measures are constructed so as not to require adjustment for patient risk or other characteristics. For measures related to screening, prevention, and wellness, the mean percentage of users of care at VA facilities who received recommended services ranged from 58 percent (influenza immunization 18–64 years) to 95 percent (advising smokers and tobacco users to quit) (Table G-1 in Appendix G). Under measures related to chronic condition management, 90 to 99 percent of patients with diabetes and cardiovascular disease received recommended care (Table G-1 in Appendix G). Measurement of the extent to which risk factors are controlled in VA patients indicated 67 percent (low density lipoprotein-cholesterol, or LDL-C), 78 percent (blood pressure), and 81 percent (HbA1c)<sup>64</sup> of those with diabetes, 75 percent (blood pressure) of those with hypertension, and 70 percent (LDL-C) of those with cardiovascular disease have achieved clinical targets (Table G-1 in Appendix G). The variation in performance across VA facilities differed dramatically by measure, with the difference between the highest- and lowest-performing VA facilities ranging from 5 percent (hemoglobin A1c test for diabetes) to 38 percent (use of antidepressants during the continuation phase for patients with newly diagnosed depression) (Table G-1 in Appendix G).

We also report performance on outpatient measures of the quality of care for VA compared with three external benchmarks from the National Committee for Quality Assurance: commercial HMOs, Medicare HMOs, and Medicaid HMOs. We present these because VA has used them as comparison groups in VA annual reports (VA, 2013d). However, the characteristics of patients in these populations may differ from Veterans' characteristics in important ways. In addition, the data sources and methodology used to collect the data differ between VA and National Committee for Quality Assurance for some measures (see notes on Figures 5-7, 5-8, and 5-9). For this analysis, we used FY 2013 data for VA patients to align with the latest available data for the non-VA comparison groups (calendar year 2013).

We found that VA patients with diabetes were significantly more likely to receive recommended care or achieve clinical targets in the outpatient setting from VA providers than patients in commercial HMOs, Medicare HMOs, and Medicaid HMOs (Figure 5-7). VA performance on the seven measures of diabetes care in Figure 5-7 exceeded the non-VA comparison groups by a wide margin. There is substantial variability in performance across VA facilities for some of the measures, based on difference of 3 to 14 percentage points between the 10th and 90th percentiles (see lines on the bars in Figure 5-7). However, the commercial

---

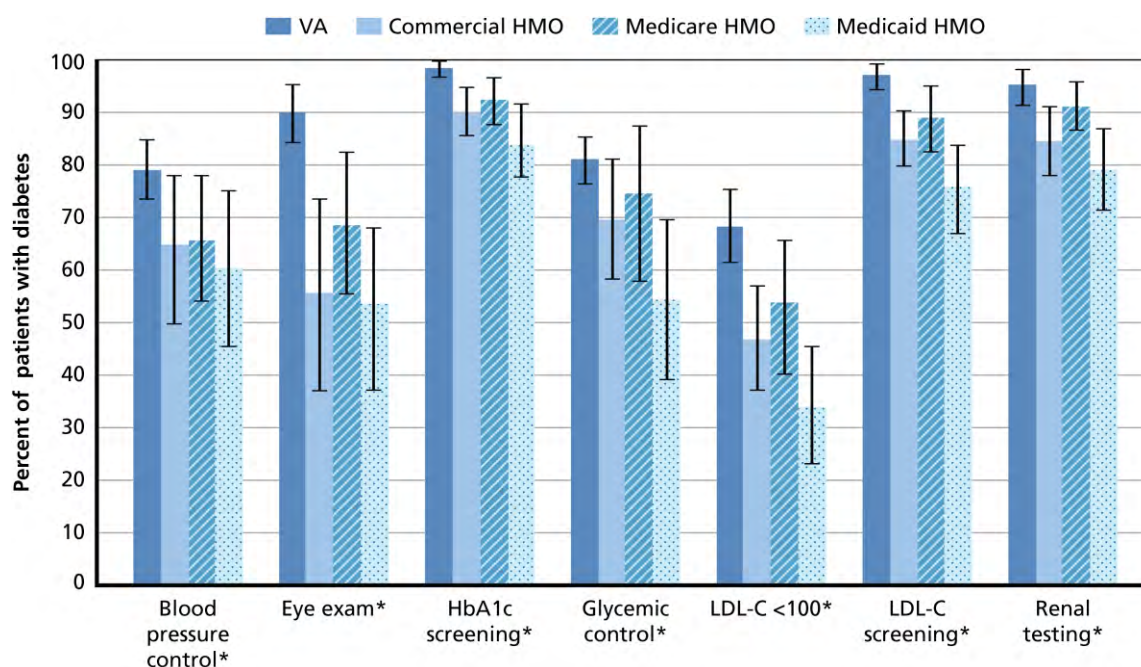
<sup>63</sup> For a few HEDIS measures, a lower rate indicates better performance. For these, the target rate is 0 percent rather than 100 percent.

<sup>64</sup> The HEDIS measure in Table G-1 is reported as "poor control." Here we convert it to adequate control as  $(100-N)$  where N is the measure rate in Table G-1.



HMOs, Medicare HMOs, and Medicaid HMOs all exhibited much more variability than VA facilities.

**Figure 5-7. Performance on Outpatient Measures of Diabetes Care Quality, VA FY 2013 Compared with Non-VA CY 2013**



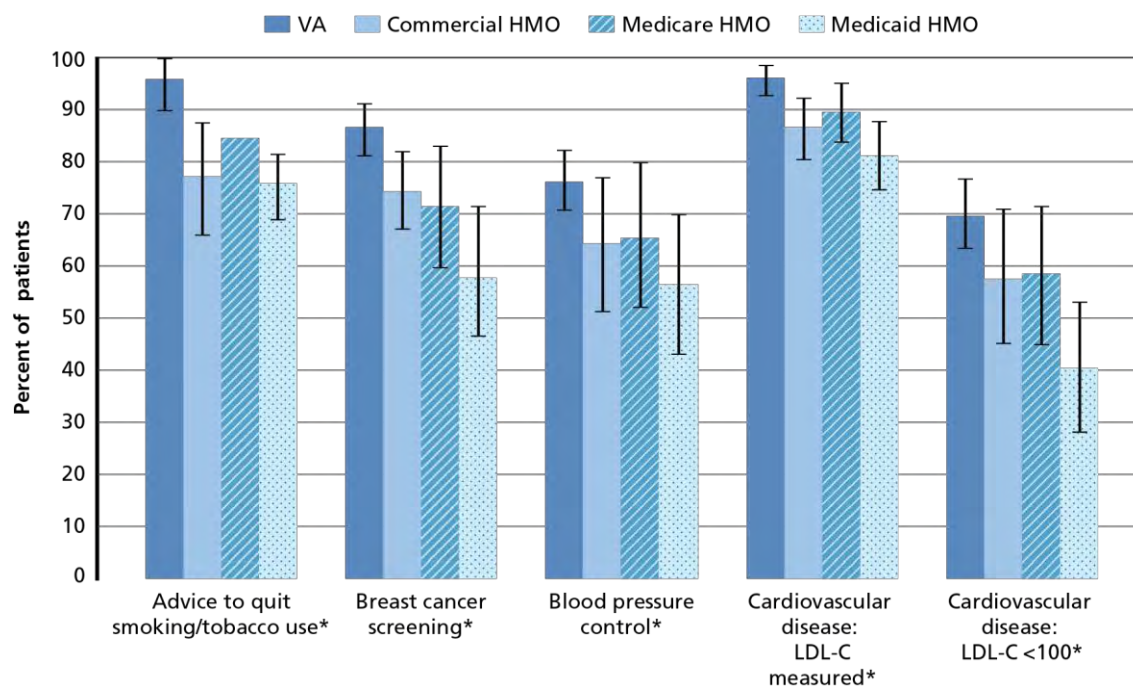
Notes: The 10th and 90th percentiles for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (\*) next to the measure name indicates a statistically significant difference between VA and one or more of the non-VA comparison groups. HbA1c = hemoglobin A1c. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

Sources: Facility-level data for VA patients for FY 2013 were obtained from the VA Office of Performance Measurement. National means, and 10th and 90th percentiles for CY 2013 for non-VA subgroups of patients (commercial HMO, Medicare HMO, and Medicaid HMO) were obtained from the following report: National Committee for Quality Assurance. 2014. *The State of Health Care Quality 2014*. Available March 20, 2015, at [www.ncqa.org](http://www.ncqa.org). VA data were collected by abstracting medical record data similar to HEDIS methodology. VA data were based on a fiscal year. Non-VA data were based on a calendar year.

Similarly, VA patients were significantly more likely than patients in commercial HMOs, Medicare HMOs, and Medicaid HMOs to have preventive care (advice about smoking cessation and breast cancer screening) or controlled risk factors (blood pressure control for hypertension, and LDL-C less than 100 mg/dL for cardiovascular disease) in the outpatient setting (Figure 5-8). VA performance on the five measures in Figure 5-8 was closer to the non-VA comparison groups than the diabetes measures in Figure 5-7, but still significantly higher. There is

substantial variability in performance across VA facilities for these measures, based on differences of 6 to 13 percentage points between the 10th and 90th percentiles (shown on the bars in Figure 5-8). The commercial HMOs, Medicare HMOs, and Medicaid HMOs all exhibited considerably more variability than VA facilities.

**Figure 5-8. Performance on Other Outpatient Quality Measures, VA FY 2013 Compared with Non-VA CY 2013**



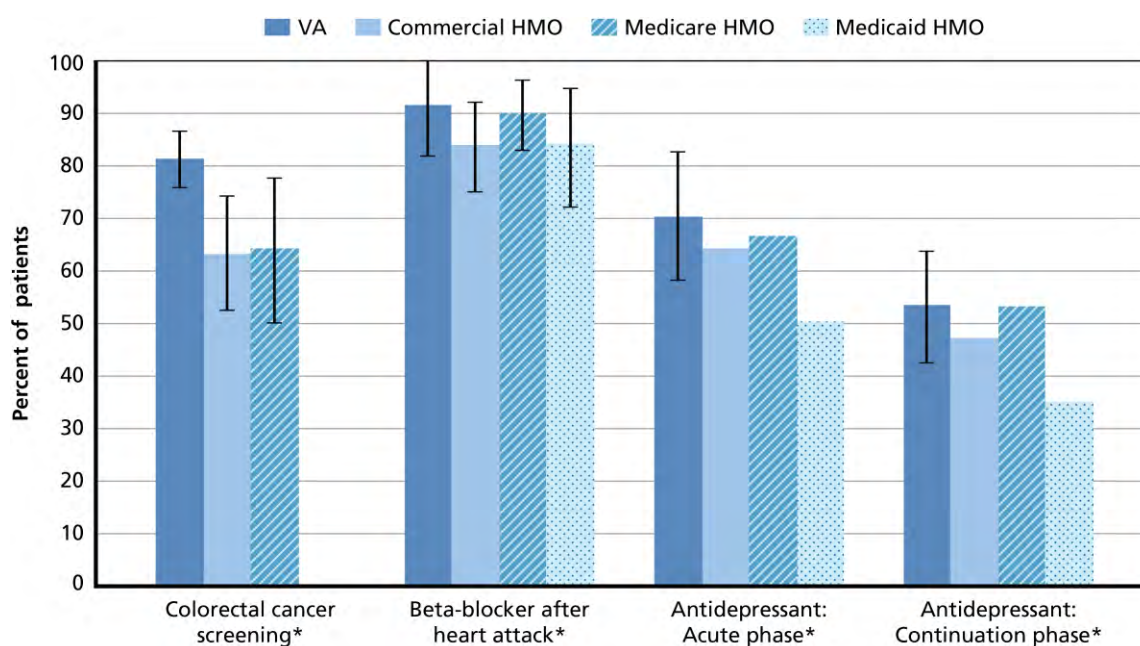
Notes: The 10th and 90th percentiles for the reporting facilities in each subgroup are represented by the line extending from each bar. These percentiles are not available for Medicare HMOs for “Advice to Quit Smoking/Tobacco Use.” An asterisk (\*) next to the measure name indicates a statistically significant difference between VA and one or more of the non-VA comparison groups. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

Sources: Facility-level data for VA patients for FY 2013 were obtained from the VA Office of Performance Measurement. National means, and 10th and 90th percentiles for CY 2013 for non-VA subgroups of patients (commercial HMO, Medicare HMO, and Medicaid HMO) were obtained from the following report: National Committee for Quality Assurance. 2014. *The State of Health Care Quality 2014*. Available as of March 20, 2015, at [www.ncqa.org](http://www.ncqa.org). VA data for all measures were collected by abstracting medical record data. HEDIS data were collected by medical record abstraction for all measures except “Advice to Quit Smoking/Tobacco Use” which is survey data. VA data were based on a fiscal year. Non-VA data were based on a calendar year.

Another four outpatient measures are compared between VA patients and commercial HMOs, Medicare HMOs, and Medicaid HMOs in Figure 5-9. These focus on preventive care (colorectal

cancer screening) and medication use (beta-blocker after heart attack and antidepressants for depression). VA performance on the four measures in Figure 5-9 exceeded most of the non-VA comparison groups, but the differences were smaller. Differences between VA and Medicare HMO rates were not significant for two measures (beta-blocker after heart attack and antidepressants during continuation phase). There is much more variation in performance across VA facilities for these measures, based on difference of 11 to 24 percentage points between the 10th and 90th percentiles (shown by lines on the bars in Figure 5-9). For the two measures with non-VA variability estimates, commercial HMOs, Medicare HMOs, and Medicaid HMOs all exhibited somewhat more variability than VA facilities.

**Figure 5-9. Performance on Other Outpatient Quality Measures, VA FY 2013 Compared with Non-VA CY 2013**



Notes: The 10th and 90th percentiles for the reporting facilities in each subgroup are represented by the line extending from each bar; these are not available for the non-VA comparison groups for the two antidepressant measures. An asterisk (\*) next to the measure name indicates a statistically significant difference between VA and one or more of the non-VA comparison groups. The Colorectal Cancer Screening rate for Medicaid HMOs is not available. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

Sources: Facility-level data for VA patients for FY 2013 were obtained from the VA Office of Performance Measurement. National means, and 10th and 90th percentiles for CY 2013 for non-VA subgroups of patients (commercial HMO, Medicare HMO, and Medicaid HMO) were obtained from the following report: National Committee for Quality Assurance, 2014. *The State of Health Care Quality 2014*. Available as of March 20, 2015 at [www.ncqa.org](http://www.ncqa.org). VA data for the Colorectal Cancer Screening and Beta-Blocker after Heart Attack measures were collected by



abstracting medical record data. VA data for the Antidepressant Medication Management (Acute Phase and Continuation Phase) measures and all of the HEDIS measures were based on administrative data. VA data were based on a fiscal year. Non-VA data were based on a calendar year.

### **5.2.3 Current VA Performance on Patient-Centeredness Measures**

#### **5.2.3.1 VA Performance on Patient-Centeredness Measures for Inpatient Setting**

To assess their experience with inpatient services provided by VA, patients in VA and non-VA facilities are asked to report on their experiences of care on the Inpatient SHEP. This survey parallels the HCAHPS Survey administered by non-VA hospitals across the country. For matched non-VA hospitals, we used HCAHPS data that were reported on the CMS Hospital Compare website (CMS, 2015). Figure 5-10 presents the average percentage of patients who responded “always” to individual questions or to sets of questions (composites) that measure related concepts. To allow for fair comparisons between VA and non-VA facilities, results for both VA and non-VA facilities are adjusted for patient characteristics, mode of survey administration, and national mean hospital performance using guidance provided by CMS.

The facility-level mean of patient experience scores ranged from a low of 51 and 43 percent for care transition for, respectively, VA and matched non-VA facilities, to a high of 84 and 86 percent for discharge information, respectively, for VA and matched non-VA facilities (Figure 5-10). Observed differences between VA and non-VA facility performance were statistically significant for all inpatient patient experience measures except discharge information. We classified the magnitude of the difference as small, medium, or large, using a Cohen’s d statistic. Compared with non-VA facilities, VA facilities performed better by a large amount for the measure of care transition, and better by a small amount with regard to communication about medicine and the cleanliness of the hospital (Figure 5-10). VA facilities performed worse than non-VA facilities by a small amount for measures responsiveness of hospital staff, quietness of the hospital environment, and overall rating of the hospital (data not shown).<sup>65</sup> VA facilities performed worse than non-VA facilities by a medium amount for the measures of communication with doctors and communication with nurses, and by a large amount for pain management.

Variation in inpatient patient experience measures across VA facilities was very high, with a 17- to 42-percentage-point difference between the lowest and highest ratings by facility (Figure 5-10).<sup>66</sup> Even more variation in measure rates was observed for the matched non-VA facilities. As

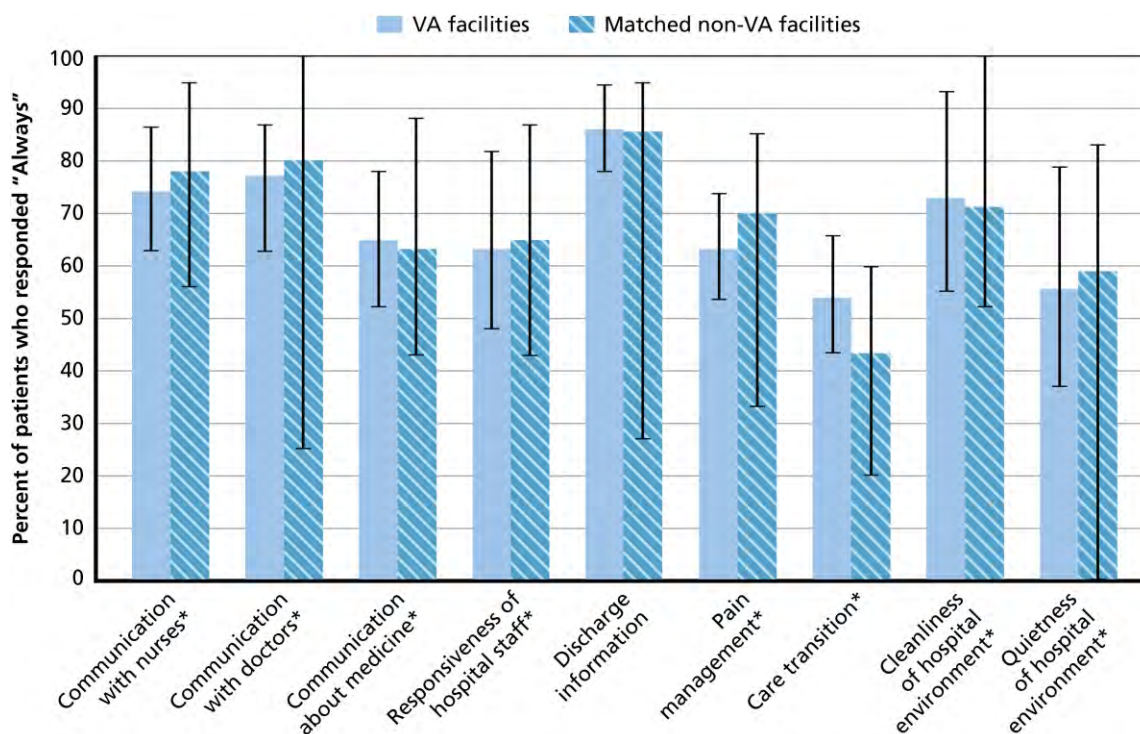
---

<sup>65</sup> We did not compare VA to non-VA facility performance on the “Willingness to Recommend Hospital” measure, as the likelihood of Veterans’ recommending a VA facility to friends and family members may be affected by their eligibility for care at VA facilities.

<sup>66</sup> To assess variation in inpatient SHEP scores across facilities within VA, we used inpatient SHEP scores that VA adjusted using its internal patient mix adjustment model, which includes the following variables: age, sex, priority group, urban/rural residence, hospital service line (surgical/medical), self-reported health status, self-reported mental health status, education, and race/ethnicity.

described in Section 4, differences of as few as three to six percentage points on questions on a CAHPS health plan survey have been associated with substantial differences in rates of voluntary disenrollment from Medicare plans (Lied et al., 2003), suggesting that the large variation in inpatient SHEP scores across VA facilities is reflective of large and meaningful differences in patients' experiences of care at these facilities.

**Figure 5-10. VA and Non-VA Performance on Patient Experience Measures for Inpatient Setting, FY 2014**



Sources: VA facility-level data for patient experience measures for FY 2014 were obtained from the VA Office of Performance Measurement. Non-VA facility-level data for patient experience measures for Quarter 4 of FY 2014 were obtained from the CMS Hospital Compare website.

Notes: Minimum and maximum values for the reporting facilities in each subgroup are represented by the line extending from each bar. An asterisk (\*) next to the measure name indicates a statistically significant difference at  $p < 0.05$  or less between VA and non-VA hospitals. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

### 5.2.3.2 VA Performance on Patient-Centeredness Measures for Outpatient Setting

To assess patient experience with outpatient services provided by VA, a sample of patients receiving VA outpatient care at each VA facility is asked to report on their experience with their health care provider over the past 12 months on the SHEP PCMH. Figure 5-11 presents the VA facility average percentage of patients who responded "always" to individual questions or to sets of questions (composites) that measure related concepts. Results are adjusted for patient

characteristics to allow for fair comparisons across VA facilities.<sup>67</sup> The mean reports of Veterans' experiences ranged from a low of 56 percent for self-management support to a high of 84 percent for talking about prescription medicines at each visit. Variation across facilities was very high, with more than a 20-percentage-point difference between the lowest and highest ratings by facility for most measures, and a 40-percentage-point difference for the measure on follow-up on test results.

As noted in Section 4, there are no nationally representative data with which to compare SHEP PCMH results.<sup>68</sup> However, the SHEP PCMH contains the same measures as the CAHPS Clinician & Group PCMH Survey that is used widely throughout the United States to collect information on patients' experiences with care. The CAHPS Database hosted by the AHRQ contains comparative data for this survey from medical practices that volunteer to submit their survey responses. The most recent year of the Database available at the time of this report, 2013, includes results from 833 participating practice sites administering the CAHPS Clinician & Group PCMH Survey (Agency for Healthcare Research and Quality (AHRQ), 2015). These practices do not constitute a representative sample of all medical practices in the United States, and, given practices' willingness to voluntarily submit their scores, high-performing practices are likely over-represented. The practices differ from the complete set of VA facilities for which we report performance. Therefore, we compare the performance of the *top-performing VA facilities* in FY 2014 with the *average performance of the Database practices* in 2013 to examine the relative strengths and weakness of top-performing VA and non-VA facilities. Since some CAHPS Database practices may not be high performers, we also compare the performance of the *75th percentile of VA facilities* for each measure with the *average performance of the Database practices*.

We were not able to adjust the Database survey scores to account for factors such as respondents' age, sex, self-reported health and mental status, or education, which have been shown to be associated with reporting systematically higher or lower responses on patient experience surveys (Zaslavsky et al., 2001; Hargraves et al., 2001; Elliott et al., 2009). Our analyses of inpatient SHEP data, described above, suggest that adjusting for these factors may account for differences of up to three percentage points in either direction between reports of patient experience from SHEP and those from a comparable CAHPS survey, and an average of four points for overall ratings of care.<sup>69</sup> Thus, if differences between VA SHEP top-performing

---

<sup>67</sup> VA's internal patient mix adjustment model for the outpatient SHEP includes the following variables: age, sex, priority group, urban/rural residence, self-reported health status, self-reported mental health status, education, and race/ethnicity.

<sup>68</sup> National scores are available for the CAHPS Health Plan Survey and Medicare CAHPS surveys; however, the measures on these surveys are not the same as those on the SHEP PCMH.

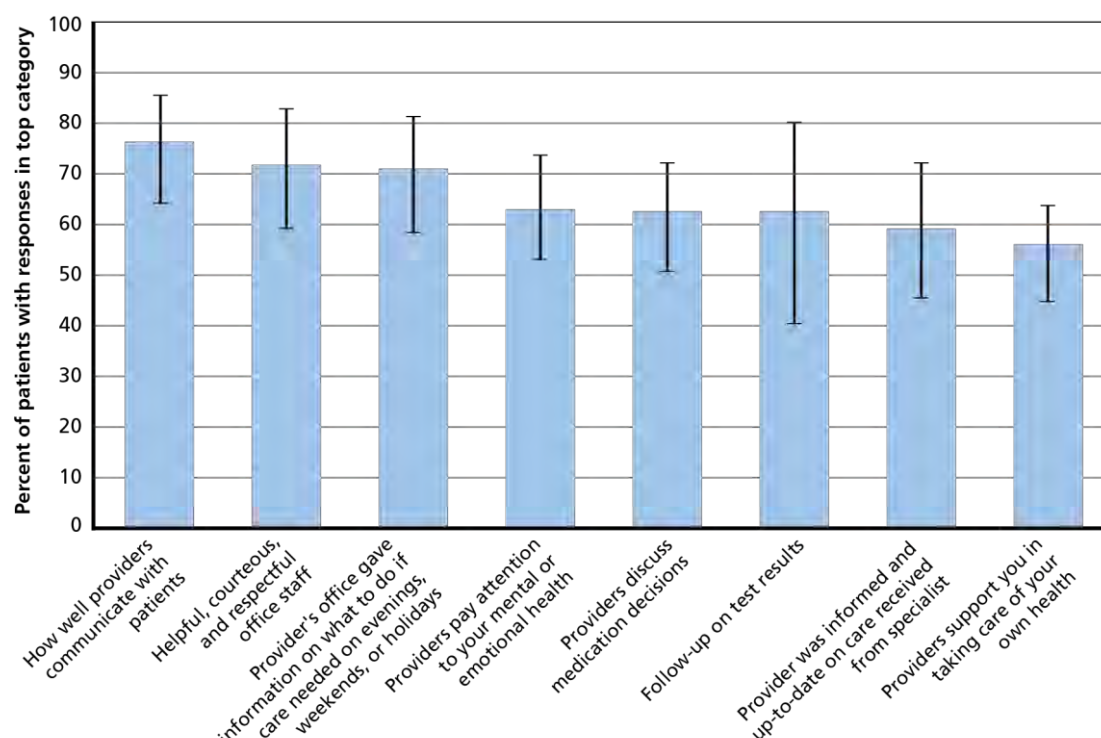
<sup>69</sup> We calculated average VA facility Inpatient SHEP measure scores in two ways: (1) using VA's internal patient mix adjustment model and (2) using CMS HCAHPS adjustments. The difference between the two sets of adjusted scores for experience measures, such as communication with doctors and nurses, care transition, and cleanliness and quietness of the hospital environment, ranged from -3.1 to +2.7. The average difference between the two sets of adjusted scores for overall ratings of care was 3.9.

scores and average CAHPS Database scores on reports of care experiences are greater than three percentage points (or differences for overall ratings are greater than four percentage points), they are unlikely to be explained by patient mix alone. Here we consider differences of up to three percentage points between scores of high-performing VA facilities and average CAHPS Database practices as comparable performance, and differences greater than three percentage points to indicate truly higher or lower performance for reports of care experiences; we apply a margin of 4 percent for the overall rating of care.

Taking into account these margins, top-performing VA facilities were comparable to average practices in the CAHPS Database with regard to the proportion of Veterans responding 9 or 10 out of 10 for the overall rating of their health care provider (78 percent for top-performing VA facilities versus 82 percent for CAHPS Database practices), but the 75th percentile of VA facilities performed substantially worse than average CAHPS Database practices on this measure (74 percent versus 82 percent).

Across VA facilities, Veterans responding to the SHEP PCMH at top-performing VA facilities and the 75th percentile of VA facilities were less likely than surveyed patients in CAHPS Database practices to report that their providers always communicated well with them (83 percent for top-performing VA facilities and 80 percent at 75th percentile of VA facilities compared with 92 percent at CAHPS Database practices), that office staff were always helpful, courteous, and respectful (80 percent and 76 percent versus 92 percent), or always followed up on test results (75 percent and 68 percent versus 87 percent).

**Figure 5-11. VA Performance on SHEP Patient Experience Measures for Outpatient Setting, FY 2014**



Source: Facility-level outpatient patient experience data for VA patients (SHEP PCMH) in FY 2014 obtained from the VA Office of Performance Measurement.

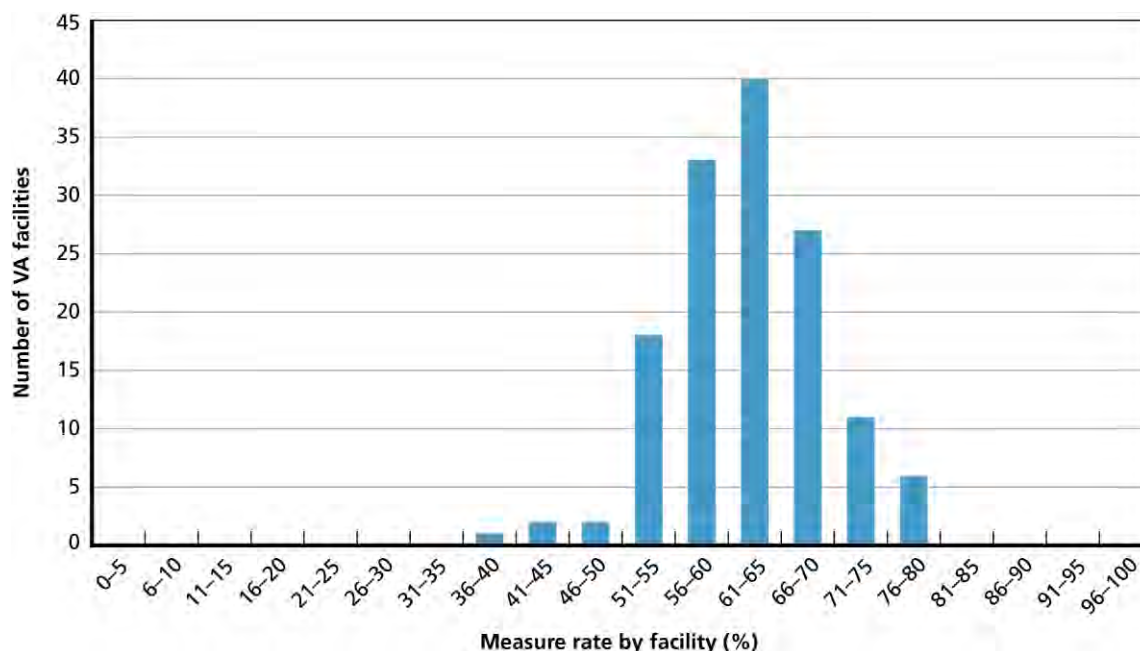
Notes: How Well Providers Communicate with Patients, Helpful, Courteous and Respectful Office Staff, Providers Pay Attention to Your Mental or Emotional Health, and Providers Support You in Taking Care of Your Own Health are composites that combine more than one survey question. The height of the bar is equal to the mean percentage of patients with responses that fall in the top category. Minimum and maximum values for the reporting facilities for each measure are represented by the line extending from each bar. These national means based on VA facility-level data may differ from national measure rates in VA publications, which are based on patient-level data.

## 5.2.4 Variation in Current VA Performance

As noted throughout this section, we observed wide variation in performance across VA facilities on many quality measures for the inpatient and outpatient settings. In this subsection, we present four examples, including one related to follow-up on test results with a 40-percentage-point difference between the lowest and highest measure score for VA facilities (Figure 5-12) and another patient experience measure related to care coordination between the providers in the outpatient setting, with a 27-percentage-point difference between the lowest and highest measure score for VA facilities (Figure 5-13). Similar variation was observed for a patient experience measure related to pain management in the inpatient setting (Figure 5-

14), with a 20-percentage-point difference between the lowest and highest measure rate for VA facilities. Another example of a measure exhibiting wide variation across VA facilities is eye exams in the outpatient setting for patients with diabetes (Figure 5-15), exhibiting a 21-percentage-point difference in performance between the lowest and highest measure rates for VA facilities.

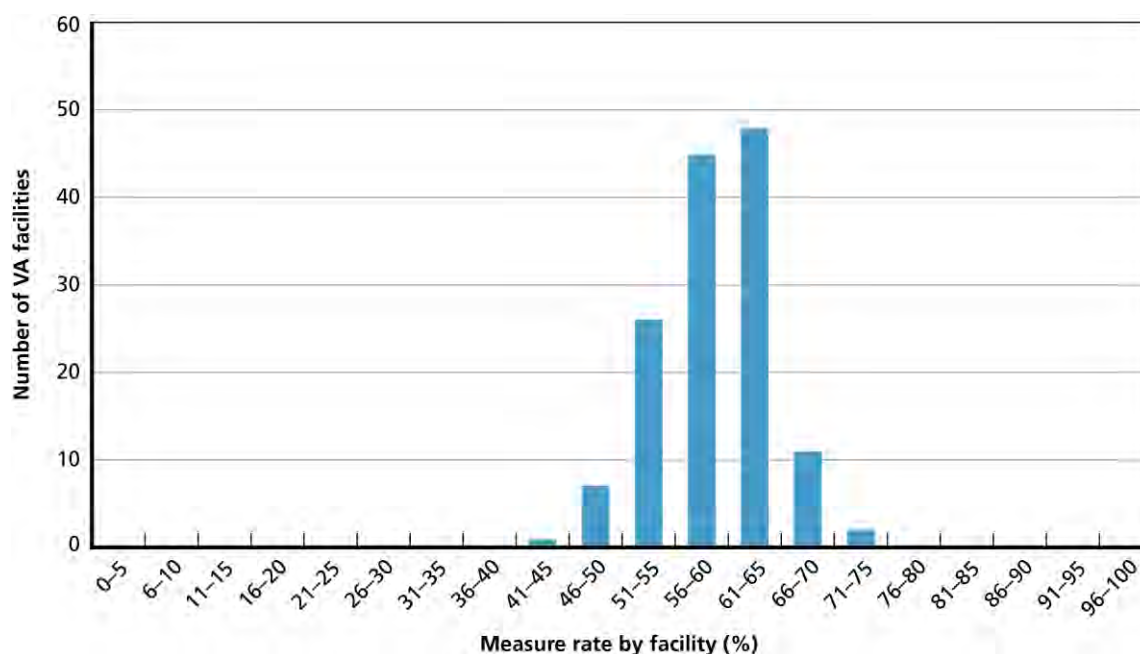
**Figure 5-12. Patient Experience with Follow-Up on Test Results in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014**



Source: Facility-level outpatient patient experience data for VA patients (SHEP PCMH) in FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The “Measure Rate by Facility” represented on the X-axis is equal to the mean percentage of patients by facility who responded “Always” based on the following responses: “never,” “sometimes,” “usually,” and “always” to the statement: “In the last 12 months, when this provider ordered a blood test, X-ray, or other test for you, how often did someone from this provider’s office follow up to give you those results?”

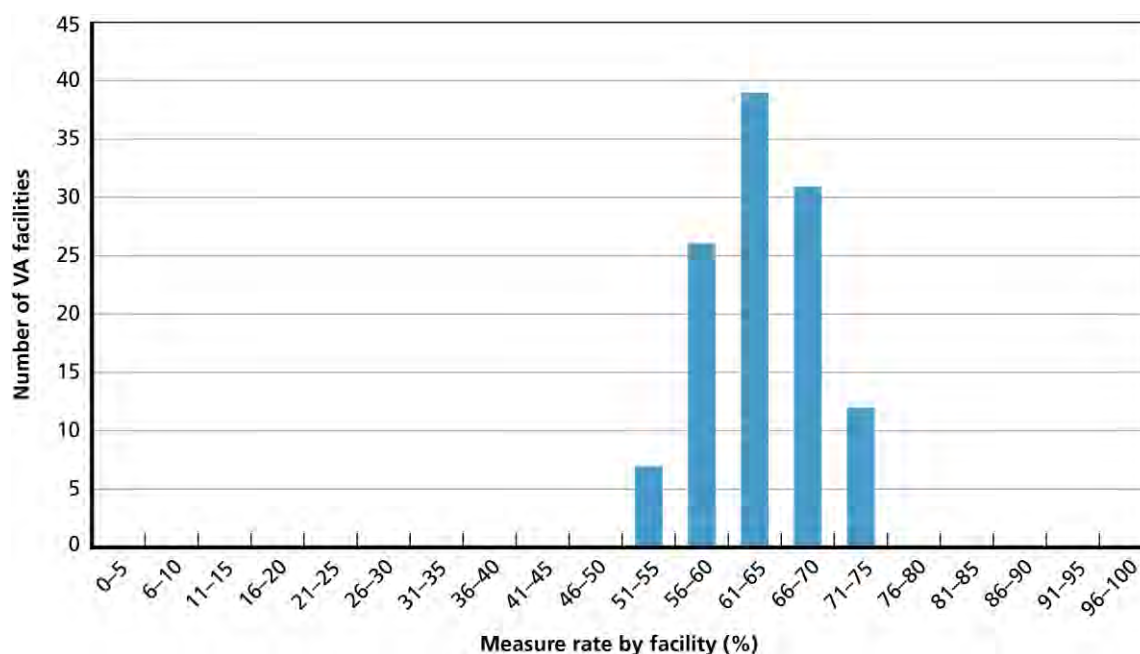
**Figure 5-13. Patient Experience with Care Coordination Between Providers in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014**



Source: Facility-level outpatient patient experience data for VA patients (SHEP-PCMH) in FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The “Measure Rate by Facility” represented on the X-axis is equal to the mean percentage of patients by facility who responded “always” based on the following responses: “never,” “sometimes,” “usually,” and “always” to the statement: “In the last 12 months, how often did the provider named in Question 1 seem informed and up-to-date about the care you got from specialists?”

**Figure 5-14. Patient Experience with Pain Management in Inpatient Setting: Number of VA Facilities by Measure Rate, FY 2014**

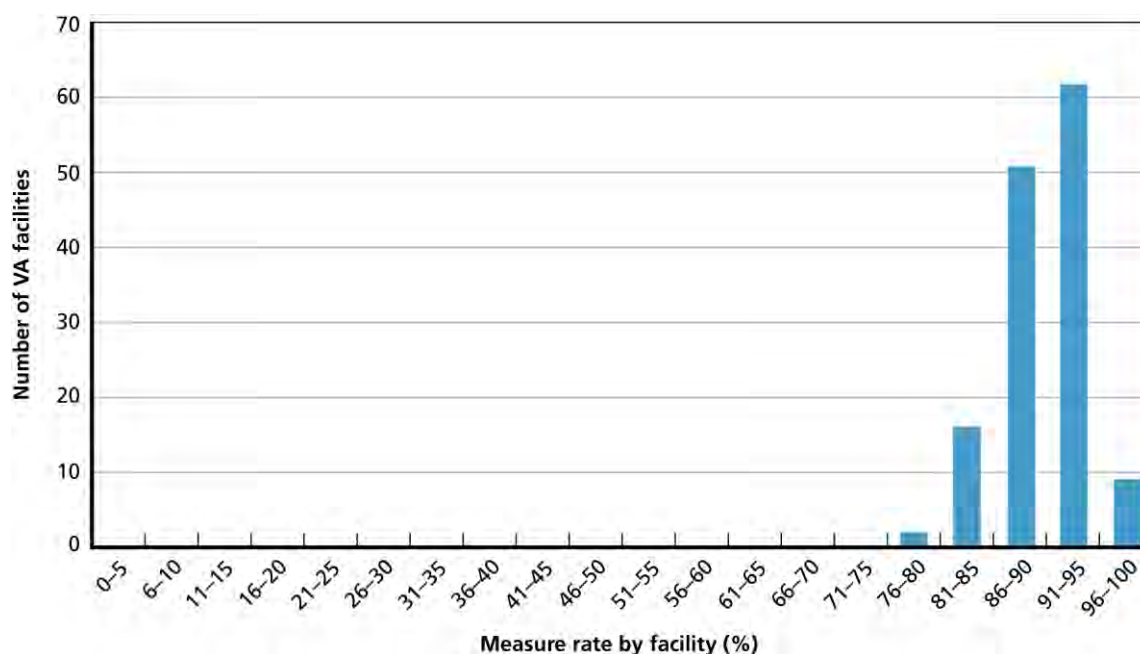


Source: VA facility-level inpatient data for patient experience measures (SHEP) for FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The “Measure Rate by Facility” represented on the X-axis is equal to the mean percentage of patients by facility who responded “Always” based on the following responses: “never,” “sometimes,” “usually,” and “always” to two statements: “During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?” and “During this hospital stay, how often was your pain well controlled?” The measure is calculated as the average of the facility's scores on these two items.



**Figure 5-15. Eye Exams in Patients with Diabetes in Outpatient Setting: Number of VA Facilities by Measure Rate, FY 2014**



Source: Facility-level outpatient quality measure data for VA patients for FY 2014 obtained from the VA Office of Performance Measurement.

Notes: The “Measure Rate by Facility” represented on the X-axis is equal to the mean value of “Percentage of patients with diabetes who had eye exam (retinal) performed” by facility.

### 5.2.5 Subsection Summary

We conclude that in many areas of quality of care, the average performance of VA facilities compares favorably with non-VA performance, based on an analysis of measures of quality commonly used by health care organizations for monitoring and quality improvement in inpatient and outpatient settings. However, for some types of measures, our analyses indicated that average VA performance at the facility level is significantly worse than non-VA performance, notably on many of the patient experience measures for care in the inpatient setting and the 30-day all-cause risk-standardized readmission measures for heart attack, heart failure, and pneumonia. Patient experience measures directly evaluate the degree to which care is patient-centered. VA’s weaker scores on patient experience measures are indicative of a need for VA to be more responsive to Veterans’ preferences, needs, and values.

We also observed substantial variation in quality measure performance across VA facilities, indicating that Veterans in some areas are not receiving the same high-quality care that other VA facilities are able to provide. A high-priority goal for VA leadership should be narrowing these gaps to ensure that quality of care is more uniform across VA facilities so that Veterans can count on high-quality care no matter which facility they access.

## 5.3 Section Conclusion

Our assessment found that VA health care quality was better on many measures and domains compared with non-VA comparators, while similar or worse on other measures. However, as with access to care, quality performance was uneven across some VA facilities and Veteran subgroups, with many opportunities for improvement.

VA outpatient care outperformed non-VA outpatient care on almost all quality measures. VA hospitals performed the same as or better than non-VA hospitals on most inpatient quality measures, but worse on others. VA performed significantly better, on average, on almost all 16 outpatient measures when compared with commercial, Medicare, and Medicaid HMOs. On average, VA hospitals performed the same or significantly better than non-VA hospitals on 12 inpatient effectiveness measures, all six measures of inpatient safety, and all three inpatient mortality measures, but significantly worse than non-VA hospitals on two effectiveness measures and three readmission measures.

On most measures, Veteran-reported experiences of care in VA hospitals were worse than patient-reported experiences in non-VA hospitals. Average VA facility-level performance was significantly worse than non-VA facilities for six of 10 patient experience measures, including communication with nurses and doctors.

There were mixed opinions on the impact of VA's many quality measures. VA administrators and several health care workers noted that attention to quality measurement has led to improvements in care delivery; however, several respondents felt that measuring quality did not always have a positive effect on how facilities deliver care, and some noted that the current measurement process is a burden for VA providers and other staff members.

The variation in performance across VA facilities suggests that significant opportunities exist to improve access to high-quality care in VA through systematic performance improvement. In the next section, we examine some policy options for improving access to care for Veterans in the future.

## 6 Improving Access for Veterans

The prior sections focused on VA's current resources and capabilities for providing timely and accessible care. Looking to the future, the size, demographics, and health needs of the Veteran population will change, as described by Assessment A. VA will need to adjust its resources and capabilities to meet the changing demand for services, and this section considers VA's potential response.

VA combines its resources and capabilities to generate the supply of health care services available to enrollees. Access to care, particularly the timeliness of care, is determined in large part by whether the overall level and geographic distribution of supply is well aligned with the demand for VA care. In this section, we compare projected supply to projected demand in FY 2019 under several scenarios and provide insights into potential challenges to ensuring timely access overall and within VISNs. We then assess specific policy options designed to improve access, providing information on the expected impact on access, fiscal considerations, operational feasibility, stakeholder acceptability, and the tradeoffs among them.

### 6.1 Approaches to Improving Access

VA provides care through two avenues: its own internal resources and capabilities as well as external or private-sector resources and capabilities. Approaches to improving access could focus on either of these two broad categories. Within each category, approaches could focus on modifying the number and/or type of resources available or improving the productivity of existing resources.

Modifying the number and/or type of resources could be accomplished in a number of ways, including expanding treatment space in VA facilities, increasing the number of VA providers, increasing the number of VA support staff (clinical and/or administrative), implementing new IT systems, or making greater use of purchased care. Increasing the productivity of existing resources could also be accomplished in various ways, such as expanding the scope of practice for associate providers, improving coordination of care, and ensuring that physicians can focus on clinical tasks rather than administrative ones. The line between increasing resources and increasing the productivity of existing resources is not a stark one. In fact, many policies include some combination of both. For example, expanding the available treatment space or investing in new IT systems increases VA resources but could also increase the productivity of physicians.

A summary of methods used in these analyses is shown in the box.

### Overview of Methods and Data for Analysis of Approaches to Improving Access for Veterans

- To analyze the impact of different approaches on access for Veterans, we projected the amount of health care services supplied under several scenarios and compared these figures to projected demand from VA's EHCPM.
- Under supply scenario one, we forecasted the number of provider FTEs, given historical trends, for each specialty and administrative parent combination. We estimated a time series regression model using FTE data from the VA Productivity Cube for FY 2008 through FY 2014. We then compared the percentage growth in FTEs between FY 2014 and FY 2019 to the percentage growth in projected demand from the EHCPM over the same time period.
- For supply scenarios two and three, we estimated how much additional supply can be created through improved productivity. For supply scenario two, we estimated how much additional supply can be achieved in FY 2019 over realized supply in FY 2014 if low-productivity providers increase their productivity (holding the number of FTEs constant). We created benchmarks that represent realistic productivity levels that could be achieved in the VA system (based on FY 2014 variation in services provided at each administrative parent in each specialty, measured as RVUs per provider FTE). In scenario three, we projected the effect on supply of an increase in the productivity of low-productivity providers in combination with the forecasted change in FTEs.
- For complete details of the methods used to analyze the effect of selected policy options on access, please refer to Section 2 of this report and Appendix A-7.

## 6.2 Projections of the Impact of Different Approaches to Improving Access

To explore the impact of different approaches to improving timely access to care, we project the supply of VA health care under several scenarios and compare it to projected demand. The supply scenarios reflect the two broad approaches that VA can take.

- **Supply scenario one:** This scenario represents the first approach, which is to increase the number of resources available. The projection accounts for changes in the number of VA physicians (physician clinical FTEs) based on historical trends but assumes no changes in productivity (RVUs per FTE) from FY 2014 to FY 2019. This projection indicates how growth in the supply of VA physicians would need to differ from historical growth rates to meet the demand that EHCPM projects if no other changes affect productivity.
- **Supply scenario two:** This scenario represents the second approach, which is to increase the productivity of existing resources. This projection estimates the effect of productivity changes (increased RVUs per FTE) between FY 2014 and FY 2019 with no changes in the number of resources (physician clinical FTEs).

- **Supply scenario three:** This scenario represents a combination of the two approaches. This projection accounts for changes in both resources (physician clinical FTEs) and productivity (RVUs per FTE).

The demand estimates are measured in RVUs and taken from VA's Enrollee Health Care Projection Model (EHCPM).

As described in Subsection 3.1.1.1, the EHCPM consists of three submodels: the Enrollment Projection Model, the Utilization Projection Model, and the Unit Cost Projection Model (GAO, 2011b; Milliman, Inc., 2014). The demand estimates used in the projection analyses are generated from the enrollment and utilization projection submodels. VA projects total enrollment and then applies VHA-specific utilization rates by service. The utilization rates are created by compiling utilization data from a variety of sources, including VA, Medicare, and commercial claims databases. The utilization rates are then mapped onto physician specialties using RVUs as the measure. We use the demand projections measured in RVUs for our analysis because they provide information at the specialty level, allowing us to compare the supply in a particular specialty to the appropriate expected demand.

The model has some limitations but provides the best available estimates of future demand for VA health care services. Assessment A projects how factors affecting demand, such as the size and composition of the Veteran population and their unique health care needs, will change over time but does not estimate demand itself. Still, the estimates from Assessment A provide useful context for interpreting and assessing the EHCPM demand estimates.

The EHCPM forecasts a 19-percent increase in demand for VA health care services nationally from FY 2014 to FY 2019 (Figure 6-1) due to a projected 5.1-percent increase in enrollment and the aging of enrollees. Although the EHCPM forecast assumes that the number of Veterans will decrease (based on the VetPop model), it projects that a growing proportion of Veterans are enrolling in VA health care (Milliman Inc., 2014) and that the trend is expected to continue through FY 2019. Due to shifts in the demographic composition of the enrollee population, the EHCPM forecasts a 7.6-percent increase in enrollees younger than 45, a 1.2-percent decrease in those 45–65, a 9.0-percent increase in those 65–85, and a 5.8-percent increase in those 85 or older.

However, the EHCPM estimates of projected demand for VA health care services may be inaccurate. The EHCPM RVU projections for FY 2014 were 5 to 15 percent greater than the actual observed FY 2014 RVUs for most specialties. Moreover, changes in health care options available to Veterans outside VA (through the Affordable Care Act, for example) could reduce enrollment and reliance on VA. Estimates from Assessment A indicate that the number of patients using VA health care services is expected to increase slowly until FY 2019 and then decline. As a result, our analyses of the difference between projected supply and demand could overstate the potential gaps.

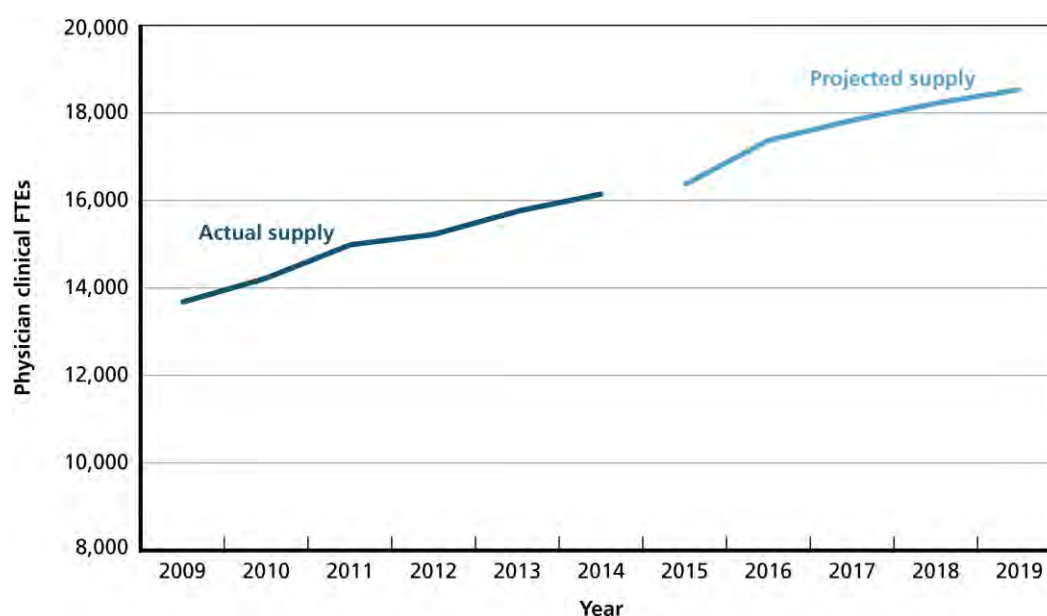
Our analysis of projected supply under different scenarios compared with projected demand for VA health care provides a high-level assessment of the likely impact of the two broad approaches to improving access for Veterans. They provide some information about where policy efforts should be targeted (either geographically or in particular physician specialties),

but do not identify which specific policies within these broad categories would be best. We discuss several specific policy options relevant to each approach in Subsections 6.4 and 6.5, incorporating information gleaned from the projections to help refine and target the policy options.

### 6.2.1 Projected Changes in Supply and Demand Under Supply Scenario One: Increasing the Number of Resources

In this subsection, we compare projected demand and projected supply under scenario one—the effect of changes in the number of resources, as measured by the supply of physicians (physician clinical FTEs). We focus on physician supply because it is a key driver of supply and the only one for which we had access to historical data. We projected physician supply in each specialty through FY 2019 based on trends from FY 2009 to FY 2014. In the model used to make these projections, we limited the change in FTEs to plus or minus 30 percent of the FY 2014 value to prevent the projections from unreasonably exceeding present conditions. The model projects forward the historical trends in FTE growth (see Figure 6-1), though it is important to note that these trends may not persist, as policies and funding change. The median increase from FY 2009 to FY 2014 in FTEs across all specialties and administrative parents was 17 percent. These changes in FTE counts, however, varied by specialty, with thoracic surgery experiencing a median decrease (–1.4 percent) across all administrative parents, and specialties like internal medicine and psychiatry growing substantially (22 percent and 27 percent, respectively). If these historical trends persist, we estimate the national supply of physicians will increase by 15 percent from FY 2014 to FY 2019 (Figure 6-2).

**Figure 6-1. Actual Supply FY 2009 to FY 2014 and Projected Supply FY 2015 to FY 2019 of VA Physician Clinical FTEs**

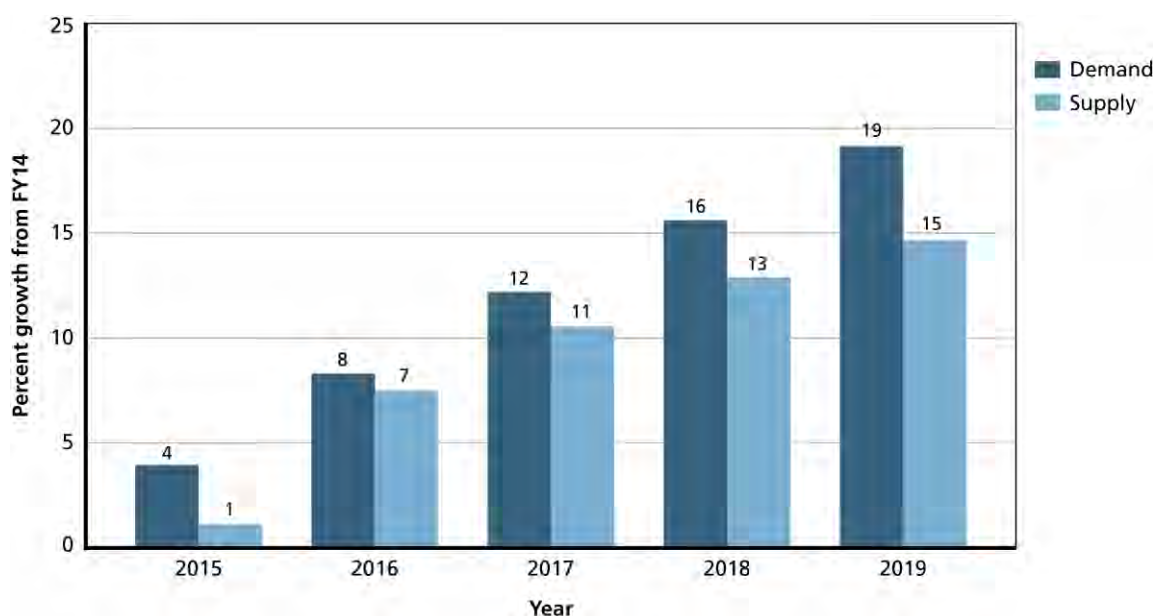


Source: RAND analyses of VA provider supply (VA Productivity Cube).

In this scenario, we assume that the quantity of services provided will increase in proportion to the number of physician FTEs. To accomplish this, additional providers would need the same space, equipment, administrative support, and other resources as current VA providers. It also assumes that changes in VA care delivery will not alter productivity. While these assumptions are likely not realistic, together they form a baseline, or status quo, projection.

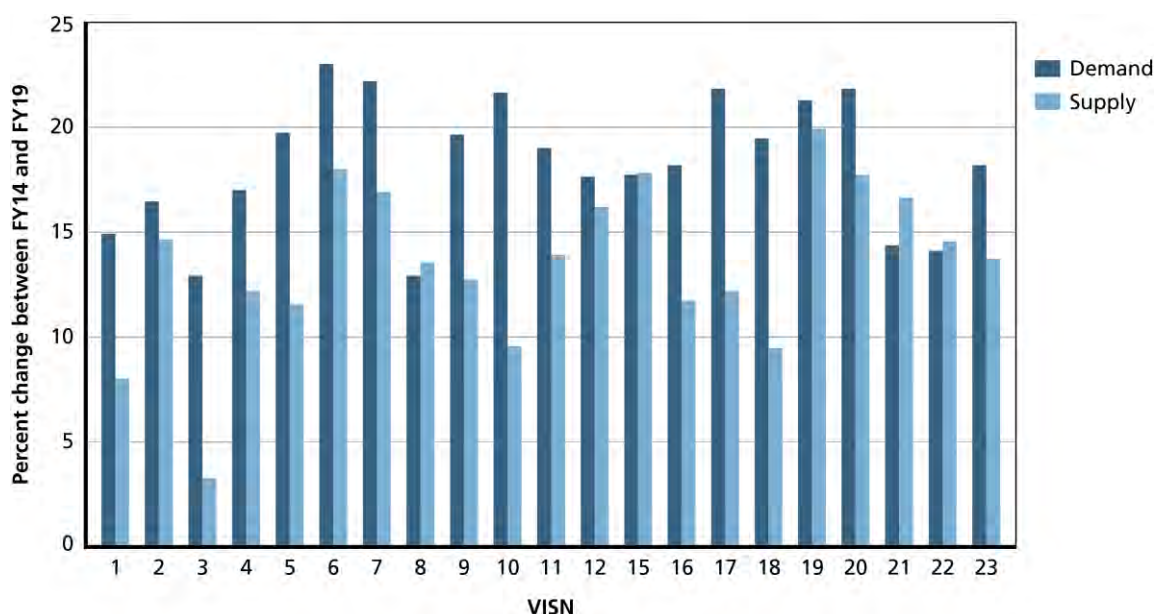
Under this scenario, the projected increase in demand for services from FY 2014 to FY 2019 (19 percent) is larger than the projected supply of services that VA would produce (15 percent; Figure 6-2) if hiring trends continue. Projected demand exceeds supply for 17 of 21 VISNs, with the difference being much larger for some VISNs than others (Figure 6-3). At one end of the spectrum, the projected difference for four VISNs (VISNs 3, 10, 17, and 18) is more than 10 percentage points. At the other end of the spectrum are seven VISNs (VISNs 2, 8, 12, 15, 19, 21, and 22) with almost no difference (positive or negative difference of 2 or less). This suggests that Veterans' access to timely care will differ depending on where they live and that some will face challenges in getting timely care. However, the difference overall and at the VISN level may be smaller than projected if the EHCPM estimates for the coming years exceed reality, as they did in FY 2014.

**Figure 6-2. Projected Growth in Demand and Supply for VA Health Care Services, from FY 2015 to FY 2015-FY 2019**



Sources: EHCPM and RAND analyses of VA provider supply.

**Figure 6-3. Projected Growth in Demand and Supply for VA Health Care Services from FY 2014 to FY 2019, by VISN**



Sources: EHCPM and RAND analyses of VA provider supply.

Note: City hubs associated with each VISN are listed in Table 3.1-3.

Differences between projected growth in demand and supply also vary widely by medical specialty, as shown in Table 6-1. The differences range from positive 6 percentage points (indicating supply growth exceeds demand growth) for infectious disease to negative 36 percentage points for obstetrics and gynecology (indicating demand growth far exceeds supply growth). Most specialties will experience a greater growth in demand than supply if historical hiring trends persist. The exceptions are infectious disease and internal medicine, where the growth in supply is projected to exceed the growth in demand.

**Table 6-1. Projected Growth in Demand and Supply for VA Health Care Services, by Specialty, FY 2014 to FY 2019**

Specialty	Projected Increase in Demand From FY 2014 to FY 2019 (%)	Projected Increase in Supply From FY 2014 to FY 2019 (%)	Percentage Point Difference Between Projected Growth in Demand and Supply (Supply – Demand)*
Obstetrics and Gynecology	43	8	–36
Plastic Surgery	27	2	–24



## Assessment B (Health Care Capabilities)

Specialty	Projected Increase in Demand From FY 2014 to FY 2019 (%)	Projected Increase in Supply From FY 2014 to FY 2019 (%)	Percentage Point Difference Between Projected Growth in Demand and Supply (Supply – Demand)*
Rheumatology	26	6	-19
Pain Medicine	26	9	-18
Endocrinology	21	3	-18
Otolaryngology	24	8	-16
Dermatology	29	14	-15
Neurology	23	8	-15
Nephrology	21	7	-14
Urology	21	7	-14
Hematology Oncology	19	7	-12
Critical Care and Pulmonary Disease	21	8	-12
Ophthalmology	24	13	-11
Physical Medicine and Rehabilitation	24	13	-11
Neurological Surgery	12	2	-10
Gastroenterology	25	16	-8
Thoracic Surgery	5	-3	-8
Surgery	17	11	-6
Orthopedic Surgery	20	14	-6
Vascular Surgery	9	7	-3
Allergy and Immunology	17	15	-2
Psychiatry	20	18	-2
Cardiology	16	15	-1
Internal Medicine	12	15	3
Infectious Disease	3	9	6

Sources: EHCPM and RAND analyses of VA provider supply.

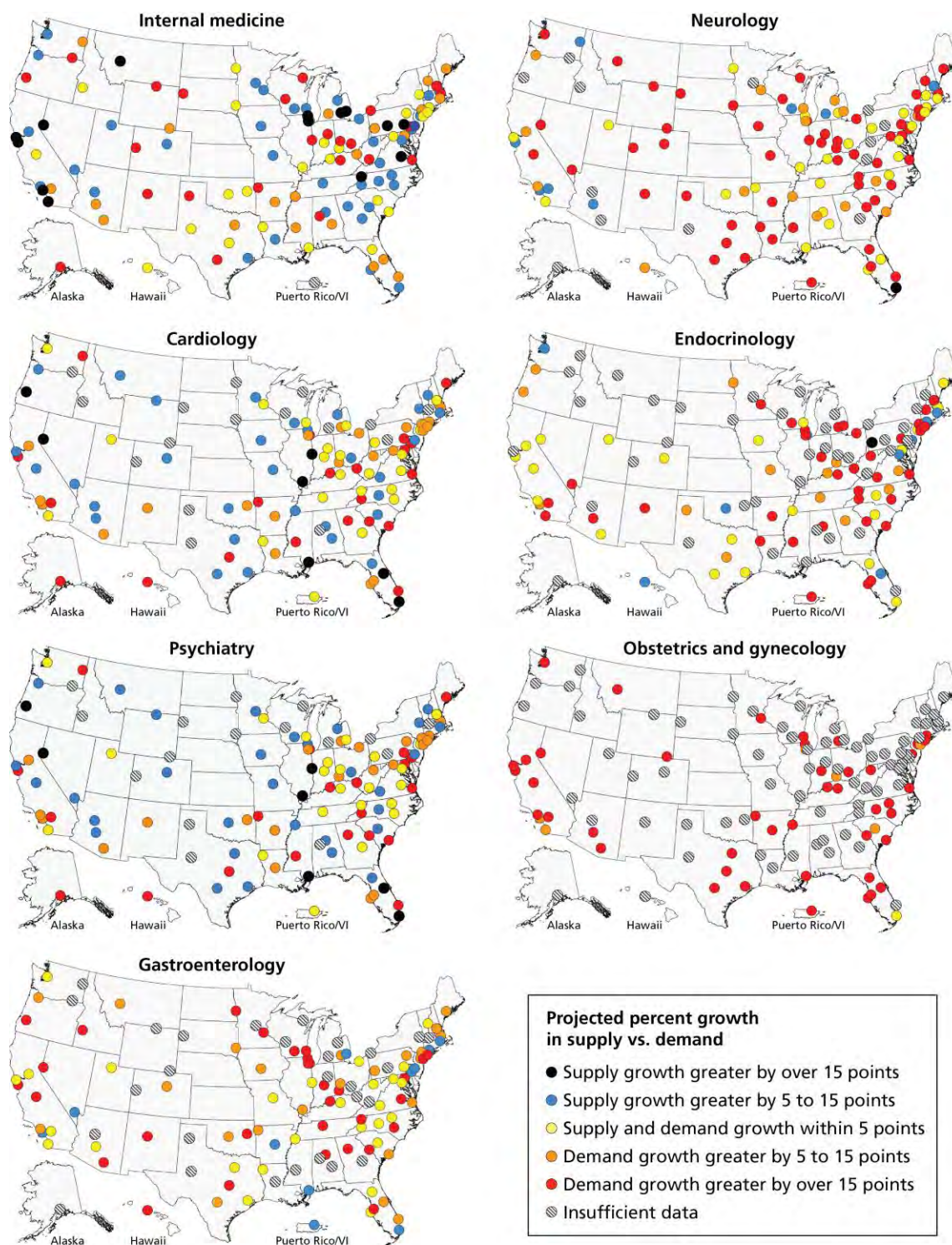
\*Negative value indicates demand is projected to grow more quickly than supply.

Projected differences between the growth in demand and supply also vary widely across VA administrative parents. For example, although the gaps for psychiatry and internal medicine services are small for VA system-wide (-2 and 3 percentage points, respectively), this is not the

case for all administrative parents (Figure 6-4). In both specialties there are many administrative parents in which demand exceeds supply by more than 15 percentage points (the red dots in Figure 6-4). Similarly, we see variation between administrative parents within the specialties where there is a large gap system-wide. For example, system-wide demand growth is projected to exceed supply growth by 18 percentage points for endocrinology, but there are some administrative parents in which supply growth exceeds demand.

This variation indicates that the distribution of projected supply may not match the distribution of increased demand for services in all areas. We note that this observed mismatch may not be entirely VA-specific, but instead may be consistent with broader trends in the health care marketplace (for example, difficulty in recruiting specialists in some geographic areas). Still, the mismatch presages potential access problems for Veterans in some geographic areas.

**Figure 6-4. Projected Changes in Demand and Supply for VA Health Care Services, by Administrative Parent and Selected Specialties, FY 2014 to FY 2019**



MS4675B-6.4

Sources: EHCPM and RAND analyses of VA provider supply.

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

These projections indicate that if the supply of VA providers continues to increase at historical growth rates, and other resources grow in proportion so that providers continue to deliver a similar amount of health care, it will be more difficult for VA to meet the demand for services and provide adequate access. These challenges will be more acute in some regions and at some VA facilities than others, so consideration of distribution will be as important as consideration of overall levels of supply and demand.

### 6.2.2 Projected Changes in Supply and Demand Under Supply Scenario Two: Increasing Productivity of Existing Resources

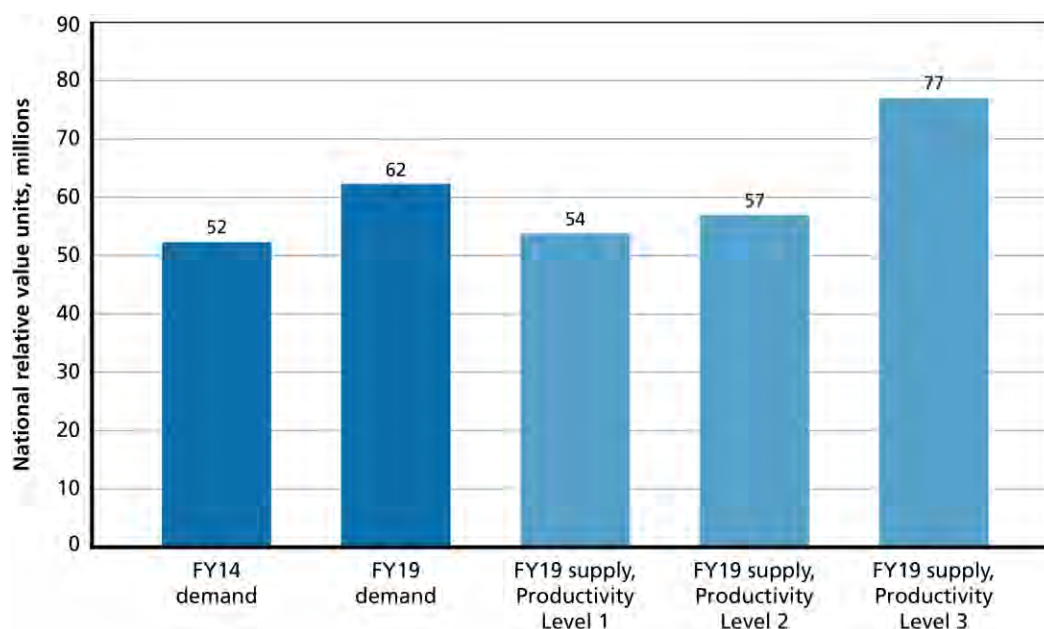
For the projection under supply scenario two, we examine the impact of increasing the productivity of existing resources. To do this, we created benchmarks that represent realistic productivity levels that could be achieved in VA's system by analyzing the FY 2014 variation in services at each administrative parent in each specialty (measured as RVUs per provider FTE). We identified the 25th, 50th, and 75th percentiles of the distributions of productivity for each specialty. We then projected FY 2019 supply using the current number of providers (that is, holding physician numbers constant at FY 2014 levels) and increasing productivity of those providers at all administrative parents to at least the level of the 25th, 50th, and 75th percentiles of the FY 2014 distribution:

- **Productivity Level 1:** All administrative parents operate at least at the FY 2014 25th productivity percentile within each specialty nationally.
- **Productivity Level 2:** All administrative parents operate at least at the FY 2014 50th productivity percentile within each specialty nationally.
- **Productivity Level 3:** All administrative parents operate at least at the FY 2014 75th productivity percentile within each specialty nationally.

For example, if an administrative parent is operating at the 16th percentile of the productivity distribution nationally within cardiology, the level 1 projection would raise Parent A's productivity to the 25th percentile nationally within cardiology. The productivity of administrative parents that operate above the specified level is left unchanged. This would increase the number of RVUs per provider FTE and generate more RVUs for VA as a whole. This projection provides information on the impact of the productivity changes but not about how those changes are achieved or what resources it would take. Specific policy options for increasing the productivity of resources are described in Subsection 6.4.2.

Figure 6-5 shows how VA's production of health care services would be expected to change under this scenario. In FY 2019, EHCPM projects that VA will need to produce 62 million RVUs of health care services. If the number of physicians did not change but productivity per FTE increased, VA in FY 2019 would produce 54 million RVUs of health care services at Productivity Level 1; 57 million at Productivity Level 2; and 77 million at Productivity Level 3. This indicates that, with substantial increases in productivity (every administrative parent operating at least at the 75th percentile of FY 2014 productivity), VA would be able to produce enough health care services to meet projected demand. However, it would likely be quite difficult to raise productivity to the 75th percentile for each specialty in each administrative parent.

**Figure 6-5. Projected Demand and Supply for VA Health Care Services Under Scenario Two, Increasing Productivity**



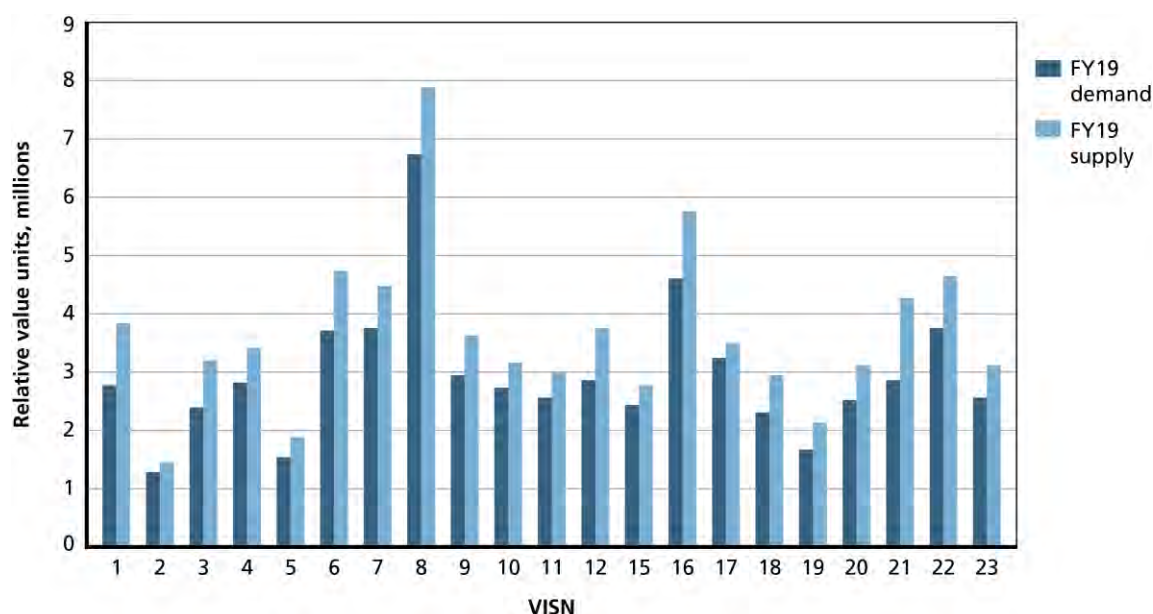
Sources: EHCPM and RAND analyses of VA provider supply.

Notes: FY 2019 supply estimates assume that resource levels remain constant at FY 2014 levels. Productivity Level 1 indicates all administrative parent-specialty combinations are at least at the 25th percentile of the FY 2014 productivity distribution. It is 50th percentile and 75th percentile for productivity levels 2 and 3, respectively.

Figure 6-6 shows that raising the productivity of all administrative parents to the 75th percentile of the VA distribution (Productivity Level 3) would generate enough supply in all VISNs to meet projected demand. There is variation in the size of the excess supply, ranging from a low of seven percent in VISN 17 to a high of 48 percent in VISN 21.



**Figure 6-6. Projected Demand and Supply for VA Health Care Services by VISN Under Scenario Two, Productivity Level 3**



Source: Authors' analysis of VA productivity data and EHCPM demand projections.

Notes: FY 2019 supply estimates assume that physician clinical FTEs remain constant at FY 2014 levels. City hubs associated with each VISN are listed in Table 3.1-3. Productivity Level 3 indicates all administrative parent-specialty combinations are at least at the 75th percentile of the FY 2014 productivity distribution.

There are also some important differences across specialties (Table 6-2). When compared with FY 2019 projected demand, most specialties would not provide enough health care services at Productivity Level 1, would be close to the production needed at Level 2, and would have enough production at Level 3. Demand for health care services is projected to increase relatively slowly for infectious disease, internal medicine, neurological surgery, pain medicine, thoracic surgery, and vascular surgery. In these specialties, improving productivity to Level 1 would bring health care service production to within 10 percent of projected FY 2019 demand.

**Table 6-2. Projected Percentage Difference Between VA FY 2019 Demand and Supply, by Productivity Level and Specialty, Under Scenario Two**

Specialty	Productivity Level 1	Productivity Level 2	Productivity Level 3
Allergy & immunology	-11	-1	97
Cardiology	-11	-7	21
Chiropracty	-13	-6	44
Critical Care & Pulmonary Disease	-13	-4	46

## Assessment B (Health Care Capabilities)

Specialty	Productivity Level 1	Productivity Level 2	Productivity Level 3
Dermatology	-19	-9	47
Endocrinology	-12	-5	40
Gastroenterology	-17	-6	49
Hematology Oncology	-13	-4	37
Infectious Disease	3	18	89
Internal Medicine	-9	-6	11
Nephrology	-16	-8	67
Neurological Surgery	-7	0	181
Neurology	-14	-5	42
Obstetrics & Gynecology	-29	-21	23
Ophthalmology	-17	-10	42
Optometry	-15	-12	19
Orthopedic Surgery	-13	-7	50
Otolaryngology	-16	-10	37
Pain Medicine	-6	1	48
Physical Medicine & Rehabilitation	-18	-9	20
Plastic Surgery	-16	-8	21
Podiatry	-19	-13	37
Psychiatry	-14	-10	11
Psychology	-18	-16	-3
Rheumatology	-16	-6	39
Surgery	-11	-4	18
Thoracic Surgery	-2	5	74
Urology	-14	-5	45
Vascular Surgery	-5	3	59

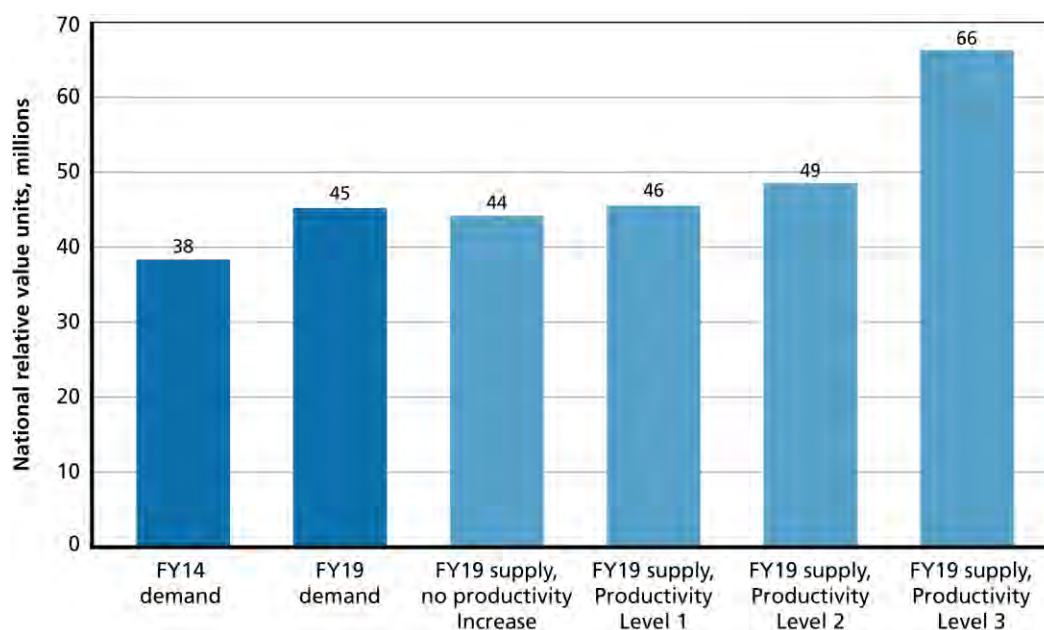
Source: Authors' analysis of VA productivity data and EHCPM demand projections.

Notes: Negative values indicate that projected supply is less than projected demand in FY 2019. Productivity Level 1 indicates all administrative parent-specialty combinations are at least at the 25th percentile of the FY 2014 productivity distribution. It is 50th percentile and 75th percentile for productivity levels 2 and 3, respectively.

### 6.2.3 Projected Changes in Supply and Demand Under Supply Scenario Three: Increasing Number and Productivity of Resources

In the third projection scenario, we allow both the number of resources (physician clinical FTEs) and their productivity (RVUs per FTE) to grow, combining the two broad approaches. We project physician clinical FTEs based on historical trends and use the projections for FY 2019 as the base for raising productivity per FTE. In this case, we found that the projected FY 2019 supply at Productivity Level 1 will be somewhat higher than the projected demand (Figure 6-7) indicating that if historical hiring trends persist relatively small increases in productivity would be needed to meet projected demand for VA health care. We should note that the specialty-administrative parent population used in this analysis is a subset of the population used to generate projections under supply scenario two, so the total RVU counts are lower in the analysis for supply scenario three than for scenario two. We use a subset of the population for the scenario three analysis because it uses the FY 2019 FTE forecasts, and missing data precluded generating a FY 2019 FTE forecast for several specialty-administrative parent combinations.<sup>70</sup>

**Figure 6-7. Projected Demand and Supply for VA Health Care Services Under Scenario Three, Increasing the Number and Productivity of Resources**



Source: Authors' analysis of VA FTE and productivity data and EHCPM demand projections.

Notes: Productivity Level 1 indicates all administrative parent-specialty combinations are at

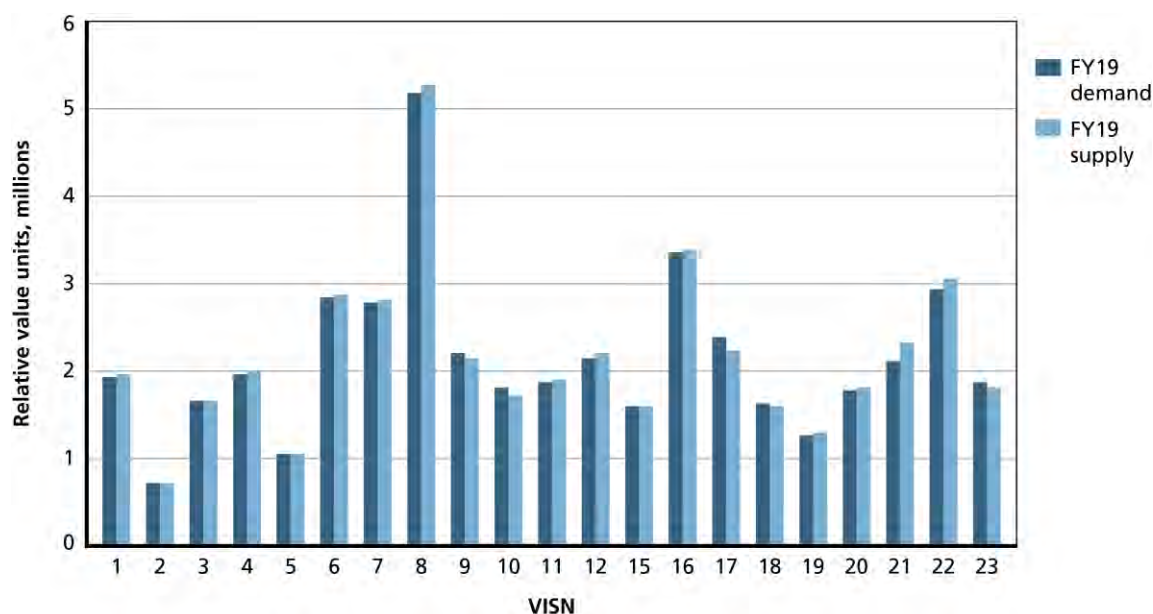
<sup>70</sup> We excluded specialty-administrative parent combinations where we had less than six years of historical FTE data; we deemed that less than six years of data was inadequate to build a regression model to use for forecasting.



least at the 25th percentile of the FY 2014 productivity distribution. It is 50th percentile and 75th percentile for productivity levels 2 and 3, respectively.

Even though supply exceeds demand at Productivity Level 1 system-wide, there is geographic variation across VISNs in the size of the difference between projected supply and projected demand and whether the difference is positive or negative. At Productivity Level 1, there are seven VISNs (2, 5, 9, 10, 17, 18, and 23) where projected supply is less than projected demand in FY 2019 (Figure 6-8), with differences ranging from 1 to 6 percent. Among the other VISNs, where projected supply exceeds projected demand, the size of the difference ranges from low of less than 1 percent in VISNs 3, 15, and 16 to a high of 11 percent in VISN 21. So, increases in provider FTEs similar to historical trends coupled with modest productivity increases (that is, Productivity Level 1) would be sufficient to meet projected demand in many, but not all, VISNs.

**Figure 6-8. Projected Demand and Supply for VA Health Care Services by VISN, Under Scenario Three, Productivity Level 1**



Source: Authors' analysis of VA FTE and productivity data and EHCPM demand projections.

Notes: City hubs associated with each VISN are listed in Table 3.1-3. Productivity Level 1 indicates all administrative parent-specialty combinations are at least at the 25th percentile of the FY 2014 productivity distribution.

Looking across specialties, we see that at Productivity Level 1, demand would exceed supply for 16 of the 25 specialties considered but by less than 10 percent in most cases (Table 6-3). At Productivity Level 2, obstetrics and gynecology, otolaryngology, and pain medicine are the only specialties for which a gap remains, and the gap is large only for obstetrics and gynecology.

## Assessment B (Health Care Capabilities)

Some specialties considered in the prior analysis are omitted entirely (for example, chiropractic, optometry) from this analysis because we did not have comparable historical FTE data for specialties that do not require a doctor of medicine degree.

**Table 6-3. Projected Percentage Difference Between VA FY 2019 Demand and Supply, by Productivity Level and Specialty, Under Scenario Three**

Specialty	Productivity Level 1	Productivity Level 2	Productivity Level 3
Allergy & Immunology	53	65	198
Cardiology	2	8	39
Critical Care & Pulmonary Disease	-2	9	66
Dermatology	-8	4	73
Endocrinology	-2	6	53
Gastroenterology	-2	11	77
Hematology Oncology	-5	7	54
Infectious Disease	16	35	122
Internal Medicine	5	8	28
Nephrology	-4	5	90
Neurological Surgery	5	15	250
Neurology	-4	6	60
Obstetrics & Gynecology	-21	-12	38
Ophthalmology	-6	2	61
Orthopedic Surgery	1	8	76
Otolaryngology	-9	-2	51
Pain Medicine	-8	-2	52
Physical Medicine & Rehabilitation	-6	4	38
Plastic Surgery	-5	4	37
Psychiatry	2	7	32
Rheumatology	-3	9	61
Surgery	-1	8	33
Thoracic Surgery	24	34	123
Urology	-3	7	68
Vascular Surgery	10	20	84

Source: Authors' analysis of VA FTE and productivity data and EHCPM demand projections.

Notes: Negative values indicate that projected supply is less than projected demand in FY 2019.

Productivity Level 1 indicates all administrative parent-specialty combinations are at least at the 25th percentile of the FY 2014 productivity distribution. It is 50th percentile and 75th percentile for productivity levels 2 and 3, respectively.

### 6.2.4 Limitations of Projections

These projections have several important limitations. The projections focus on a comparison of demand and supply changes from FY 2014 to FY 2019 but do not account for whether FY 2014 services provided were optimal or sufficient. Similarly, the projections assume that the historical trends that are incorporated will continue into the future and do not consider whether the trends are appropriate from the perspective of optimal patient outcomes.

The projections are based on provider and productivity data (that is, FTEs and RVUs). The projections do not directly include changes in other key resources, such as physical space, equipment, and IT. They do include these resources indirectly through the productivity measure, as increased productivity could come through improved use of these resources. A projection model that included all resources and the interactions between them (for example, system dynamics) would be useful but was beyond the scope of this assessment.

Moreover, the projections analysis is static in that it does not account for changes in demand that might occur if supply, and thus access, were increased. For example, if VA increased productivity of its resources and improved access, current users might increase their reliance on VA and more Veterans might choose to use the VA system. The demand projections we rely on do not account for this demand response, so the comparisons between projected supply and demand may understate a future gap.

Although there is a great deal of uncertainty around these predictions, they provide some evidence that policy changes of some type—increasing either resources or the productivity of resources—will likely be needed to improve access to care for Veterans.

### 6.2.5 Subsection Summary

VA's EHCPM forecasts a 19-percent increase in demand for VA health care services nationally from FY 2014 to FY 2019. Given the caveats noted above, our projections of supply under three scenarios (increase resources, increase productivity of existing resources, and increase both resources and productivity) indicate that it will be difficult for VA to meet the demand for services and provide adequate access unless they increase both the number and productivity of resources. The challenge of meeting Veteran demand will be more acute in some regions and at some VA facilities than others, so considerations of distribution will be as important as consideration of the overall levels of supply and demand.

## 6.3 Overview of Selected Policy Options to Improve Access for Veterans

Improvements in timely and accessible care could be accomplished through various policy changes. In the following subsections, we present several policy options to improve VA's ability to provide timely and accessible care to Veterans. These options emerged from an iterative

analytic process involving a review of the published and gray literature, key informant interviews, and ongoing guidance from a panel of in-house advisors. They were further refined based on findings from our quantitative analyses and projections regarding workforce, IT, physical infrastructure, and interorganizational relationships.

A summary of the methods used in these analyses is shown in the box.

### **Overview of Methods and Data for Developing Policy Options**

- We established a framework for identifying potential policy options in consultation with our in-house advisory panel.
- To establish evaluation criteria for assessing policy options, we began with a standard set of evaluation criteria, and then employed an iterative process using data from key informant interviews and a systematic literature review as well as input from our advisory panel.
- To identify a set of potential policy options, we used the options identified through the literature review as a starting point for developing the final list of policy options, and iteratively added, removed, and modified identified options as further information was collected through interviews and advisory panel guidance.
- In finalizing the list of options, we excluded those that (1) were infrequently raised during interviews, or (2) were expected to face significant challenges with respect to at least two of the evaluation criteria.
- For complete details of the methods used to develop policy options, please refer to Section 2 of the report and Appendix A-6.

As described in Subsection 6.1, policy options are characterized according to a two-by-two framework: first, by their primary objective to enhance timely access to care either within VA or outside VA; and second, by the approach to achieving the stated objective, either by modifying the amount and/or type of resources utilized or by increasing the productivity of existing resources (Table 6-4).

Table 6-4. Framework for Selected Policy Options

Policy Objective	Modify Amount and/or Type of Resources	Increase Productivity of Existing Resources
Enhance timely access to care within VA	<ul style="list-style-type: none"> <li>▪ Increase physician staffing (Subsection 6.4.1.1)</li> <li>▪ Increase virtual access to care (Subsection 6.4.1.2)</li> <li>▪ <i>Increase the number of support staff (Subsection 6.4.1.3)</i></li> <li>▪ <i>Increase physical space for health care delivery (Subsection 6.4.1.3)</i></li> <li>▪ <i>Integrate with Department of Defense Military Health System (Subsection 6.4.1.3)</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ Formalize full nursing practice authority throughout VA (Subsection 6.4.2.1)</li> <li>▪ Formalize task assignment in outpatient clinics (Subsection 6.4.2.2)</li> <li>▪ Standardize return visit intervals for common conditions (Subsection 6.4.2.3)</li> <li>▪ <i>Eliminate inappropriate care (Subsection 6.4.2.4)</i></li> <li>▪ <i>Expand care management programs for complex chronic conditions (Subsection 6.4.2.4)</i></li> <li>▪ <i>Expand working hours (Subsection 6.4.2.4)</i></li> </ul>
Enhance timely access to care outside VA	<ul style="list-style-type: none"> <li>▪ Expand purchased care (Subsection 6.5.1.1)</li> <li>▪ Shift VA role from provider toward purchaser of health care services (Subsection 6.5.1.2)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Consolidate existing purchased care programs (Subsection 6.5.2.1)</li> </ul>

Note: Italicized options were not included for full evaluation.

For each of the identified options, we provide an overview of current practices and issues, rationale for adopting the proposed option, and necessary steps for implementing the option, including any dependencies or requirements salient to its success. We use a traditional policy analysis framework to evaluate selected options against criteria (Patton & Sawicki, 1993):

- Impact on access: Extent to which the policy option is likely to achieve improvements in timely and accessible care
- Fiscal impact: Direct costs and potential savings associated with implementing the policy option
- Stakeholder acceptability: Likelihood of the policy option having sufficient stakeholder support to be politically feasible to legislate or to implement by VA under its existing authority
- Operational feasibility: Ease of putting the policy option into practice.

When possible, we incorporate analytic findings from our assessments of current VA resources and capabilities (presented in Sections 3 through 5) as well as projections to inform our evaluation of the options.

We also provide a brief description of excluded options (italicized in Table 6-4). As described in Section 2 (Subsection 2.8.1), we excluded policy options that were infrequently identified in our

literature review or key informant interviews, or policy options that were anticipated to face significant challenges with respect to multiple evaluative criteria. In addition, some initially identified options were excluded on the basis that they were out of the scope of Assessment B's aim to describe current and projected resources and capabilities of VA. As an example, we did not include or evaluate options that would modify VA's current eligibility structure because they center on modifying demand for health care rather than on modifying existing resources and capabilities to provide care. One such option might be to restrict eligibility for VA health care to only some priority groups, or increase cost-sharing requirements for lower priority groups to incentivize Veterans to seek other health care coverage if available to them.

The options discussed represent a prominent, but not exhaustive, set of options for improving VA's ability to provide timely and accessible care. We acknowledge that there are many alternative approaches. Some of these are addressed by the other assessments, such as reducing inappropriate or unnecessary utilization (Assessment F), optimizing scheduling processes (Assessment E), and improving management and planning for capital assets (Assessment K). In addition, prior evaluations of different aspects of VA care have been conducted and suggest various approaches to improving VA processes pertaining to timely and accessible care. We identified and reviewed these evaluations as part of our literature review, and their findings are reflected in our discussion of the policy options below.

## **6.4 Selected Policy Options to Enhance Access Within VA**

### **6.4.1 Policy Options to Modify the Amount and/or Type of Resources**

As described in Section 3, VA has a range of resources at its disposal to provide access to care but faces certain shortages, sometimes because its resources are not optimally distributed. Below, we describe and evaluate two options that were frequently raised in our interviews and literature review for modifying the amount of key resources in VA to provide timely and accessible care: (1) increase the number of physicians in VA and (2) increase virtual access to care through telehealth expansion. Other options that we considered but did not select for evaluation include increasing the number of support staff, increasing physical space for health care delivery, and integrating with the DoD military health system.

#### **6.4.1.1 Increase Physician Staffing**

##### **6.4.1.1.1 Overview**

This option would increase the number of VA physicians to expand the number of patients who can be seen in a timely manner. We focus on physicians rather than nurse practitioners, physician assistants, or other prescribing providers because physicians are currently the only providers able to practice with full and unambiguous independent authority consistently throughout VA. Other providers are more likely to serve in supplementary roles that have the potential to augment physician productivity. (In Subsection 6.4.2, we discuss two options for augmenting physician productivity through the use of existing staff and providers: formalizing task assignment in outpatient clinics and formalizing full nursing practice authority.)

### 6.4.1.1.2 Rationale

Data from multiple sources suggest that VA will need to increase its specialty physician workforce in the next five years (see Subsection 6.1, Figure 6-1) to meet growing demand. Using historical trends, our forecasts predict that by FY 2019, RVUs will exceed FTEs by at least 15 percent for obstetrics and gynecology, plastic surgery, rheumatology, pain medicine, endocrinology, otolaryngology, dermatology, and neurology (Table 6-1). In addition, the workforce analyses described in Subsection 3.2.3 identified several subspecialties that currently have longer appointment wait times than others, potentially indicating insufficient capabilities. These subspecialties include neurological surgery, neurology, gastroenterology, and physical medicine and rehabilitation.

VA primary care also faces potential workforce shortages. Primary care is one of five challenging areas for retaining and recruiting physicians and for which demand is growing, according to the 2014 VA Interim Workforce and Succession Strategic Plan. (The other challenging areas are gastroenterology, psychiatry, cardiology, and orthopedic surgery). In VA primary care, appointments have increased by 50 percent over the past three years while VA's primary care physician workforce has increased by just 9 percent (Oppel Jr. & Goodnough, 2014).

Physician workforce shortages were consistently identified in key informant interviews as an important constraint on access, and these interview data echoed some of our analytic findings. For example, interviewees cited neurology, which had substantial wait times in our analysis (Subsection 3.2.3), as a specialty with current or expected workforce shortages. Responses to our 2015 Survey of VA Resources and Capabilities supported our interview findings and the results from our wait-time analysis, with neurology, gastroenterology, and physical medicine and rehabilitation as key specialties survey respondents identified as having current or expected workforce shortages.

Interviewees highlighted several challenges pertaining to physician workforce shortages, including the organization's ability to attract competitive candidates, especially for specialty positions where VA salaries are not on par with the market and a slow and burdensome hiring process. Results from the Chief of Staff module of our 2015 Survey of VA Resources and Capabilities show that 98 percent of administrative parents reported difficulty recruiting or hiring inpatient physicians such as hospitalists and intensivists, and 62 percent reported difficulty recruiting or hiring subspecialists such as dermatologists, with noncompetitive wages being the primary reason (geographic location and sluggish HR processes were also reported as contributing to recruiting and hiring challenges). Dissatisfaction with pay was also reported as a key reason for problems with retaining specialist physicians.

Increasing the number of physicians and other licensed independent practitioners was viewed as a critical or very important way to reduce clinically meaningful delays in patient care by approximately 94 percent of sites (46 of 51 sites) reporting patient delays in obtaining a new primary care appointment on the 2015 Survey of VA Resources and Capabilities.

Assessment G explores the various gaps and challenges in VA workforce staffing as well as approaches to addressing these challenges in further detail.

### 6.4.1.1.3 Implementing Steps

Increasing the number of physicians in VA might involve several strategies. The first is simply increasing funding so facilities can hire more physicians. This might focus on the service lines with the greatest hiring needs as identified by our wait-time analysis and interviews.

Targeted physician hiring focused on specialties with the largest staffing shortages can be a sustainable approach to implementing this option, and Section 301 of the Veterans Choice Act mandates that the VA Inspector General annually identify the five occupations with the largest staffing shortages over the prior five years. However, it should be noted that although the Veterans Choice Act provides \$5 billion in additional funding to hire new clinicians (in addition to improving physical infrastructure), hiring has been challenging. While VA has set an interim goal of hiring 10,682 clinicians by September 30, 2016, using \$2.2 billion in Veterans Choice Act funding, recent reports (Robeznieks, 2015) suggest that VA had hired just 2,600 new clinicians as of May 2015, or 25 percent of the interim goal. This suggests that funding for new positions addresses only part of VA's challenge. Another strategy could be adjusting physician salaries (for example, based on productivity) to support retention or raising salaries of VA physicians to market rates to attract new hires. The latter might entail raising current salary limits for specialty physicians in geographic areas where recruitment is a particular challenge (for example, rural areas or areas with strong market competition). Data described in Section 3 (Table 3.2-13) show that VA salaries for many specialty services are well below private practice averages and generally lower than academic medical center practice as well.

VA could also increase its use of incentives such as relocation bonuses in rural areas, loan forgiveness, affiliate faculty appointments, and protected research time. Interviewees commonly cited the inability of facilities to offer benefits such as debt reduction plans as a challenge to physician retention in areas where salaries differed significantly between proximate geographic regions. Some interviewees identified the lag time in calculating VERA funding allocations to VISNs described in Subsection 3.1.2.3 as a challenge in determining the appropriate funding allocation for recruiting and retaining new providers that may need to be addressed in future efforts to improve VA's hiring process.

Another strategy might be to streamline the hiring and credentialing process so new physicians can start work sooner. Many interviewees noted it can take upward of six months to recruit and hire a provider, and a lengthy credentialing process might further delay the physician's start date. Facilities report losing interested and qualified applicants—and even accepted candidates—to private-sector jobs with more timely hiring processes and start dates. Indeed, testimony from VA physician and nursing association representatives to the House Veterans Affairs Committee's Health Subcommittee indicated that, despite the Veterans Choice Act's cash infusion, the "slow and bureaucratic" hiring process has hindered the organization from reaching its hiring goals. Interviewees identified the need for standardized credentialing processes as well as faster processing of paperwork and other requirements such as fingerprinting and physical exams that are not usually required for private-sector positions. Streamlining the hiring process by waiving requirements where possible, processing paperwork faster, or standardizing training and credentialing within a single system will likely allow VA to attract and retain more physicians. Assessment G characterizes this issue in detail.



Critical to the success of this option will be the availability of additional office space, exam rooms, and equipment for any newly hired providers to actually practice and see patients. Interviewees remarked that even if a department were able to retain a new hire, no office or other suitable workspace was available once the provider's state date arrived. In addition, clinical and administrative support staff will be needed to support the workflow and clinical processes associated with the increase in licensed independent providers.

Finally, this option should be targeted toward geographic areas and specialties with demonstrated physician shortages (primary or specialist); otherwise, existing workforce inequities might worsen. Resources could be targeted toward VISNs (for example, VISNs 3, 5, 10, and 17) where the projected growth in demand for health care outstrips the projected growth in supply, as described in Figure 6-2. Similarly, increased hiring might be particularly salient for specialties such as obstetrics and gynecology, rheumatology, and endocrinology, as shown in Table 6-1.

### 6.4.1.1.4 Evaluation

**Impact on access.** Increasing the number of physicians in VA may improve VA's ability to provide timely and accessible care by increasing the availability of clinicians to see patients, but it is highly dependent on having adequate administrative and clinic space for new providers to work in, and adequate administrative and clinical support staff to manage the workflow processes associated with additional clinic appointments (for example, checking patients in, turning over exam rooms between patients, collecting basic patient information in preparation of the visit, etc.). Both factors—space and support staffing—are already critical challenges for VA, limiting the potential impact of this option on access. Interviewees frequently cited a lack of space to house new staff and to manage the additional capacity created by increased hiring as a major frustration and a limitation to the potential of increased hiring. In addition, the impact will be constrained by local market characteristics and the employment availability of potential workers in a given geographic area, with rural areas being the most acutely impacted. These areas may not benefit from increased hiring alone. It is possible that increasing hiring of physicians across the board may adversely impact rural areas where recruitment and retention is particularly difficult by exacerbating existing inequities.

**Costs.** This is likely to be an expensive option to implement, as it requires funding more open positions for physicians, increasing salaries, providing other financial incentives, or some combination of these. In addition, applying funds to the hiring process in a timely manner will likely be challenging; VA interviewees often remarked on how difficult it has been to actually use the funds allocated by the Veterans Choice Act to hire new providers. Furthermore, this option would require costly expansions to physical infrastructure to support the additional clinical activities associated with more providers.

**Stakeholder acceptability.** Prospects regarding stakeholder acceptability are uncertain. Hiring more physicians may be an attractive strategy to the public and Veterans, given recent attention to provider shortages both within and outside VA. Interviews with Veterans Service Organizations suggest that improving access to VA physicians simply by increasing their numbers is a popular alternative to outsourcing care to private-sector physicians. However, the

costs associated with this option as well as the funding already put toward increased hiring through the Veterans Choice Act may detract from its political feasibility at both organizational and legislative levels. In addition, there may be concerns regarding the impact this option might have on private-sector capacity if it draws physicians away from the civilian health system and into VA. As with the impact on access, this is particularly salient in underserved or rural areas where physicians are often in short supply.

**Operational feasibility.** There are significant administrative barriers to increasing the number of VA physicians. Hiring within VA is complex, requiring a mix of administrative tasks (for example, creating and approving the position description, opening the position to all applicants on USAJobs, ensuring an equitable evaluation process, conducting background checks and fingerprinting) and clinical tasks (for example, verifying clinical credentials, licenses, certifications). Reducing the time to start date in VA poses an additional administrative challenge. Streamlining these tasks and consolidating the number of departments involved in the process is likely to prove challenging and time-consuming. In addition, VA may ultimately be limited by Office of Personnel Management rules guiding the organization's hiring processes and practices.

**Summary statement.** Adding more physicians to VA's workforce is a potentially impactful approach to improving VA's ability to deliver timely and accessible care, but its short-term impact on access is significantly constrained by the high costs of hiring more physicians, the lack of infrastructure to support an expanded workforce, and the bureaucratic challenges related to hiring in VA.

### 6.4.1.2 Expand Virtual Access

#### 6.4.1.2.1 Overview

This option would expand VA's use of clinical video telehealth to increase access to clinical care when distance separates the patient and provider. As described in Section 3, VA might consider developing standardized protocols for telehealth workload capture and attribution, medical record documentation by remote providers, and provider credentialing for telehealth. It might also consider implementing a single system-wide memorandum of understanding allowing service delivery between sites.

#### 6.4.1.2.2 Rationale

As discussed in Section 3, VA is the largest provider of telehealth services in the United States and has been a trailblazer in implementing clinical video telehealth and related telehealth technologies (Mazmanian, 2014). Data suggest that there is room for VA to build on its leadership role and further leverage clinical video telehealth to increase Veterans' access to care. For example, in FY 2014 more than 3.5 million encounters occurred in VA with a psychiatrist (authors' analysis of VISTA New Person File, VISTA Patient Care file, and Monthly Program Cost Reports provided by Assessment G), but just 104,632 mental health encounters (including but not limited to psychiatrist encounters) were conducted via clinical video telehealth (Table 3.5-1). This suggests an opportunity to expand clinical video telehealth use for

mental health care—an approach mentioned by many VA interviewees. Moreover, interviews revealed that clinical video telehealth mostly involves just a few types of encounters (for example, mental health, weight management, clinical pharmacy, and primary care), indicating considerable room for expansion and diversification. Some interviewees stated that, given the foundation and infrastructure that VA has already established, telehealth use could potentially expand to almost all services lines and almost all types of care.

### 6.4.1.2.3 Implementing Steps

Despite VA's established telehealth infrastructure, access to care via telehealth has been limited due to several issues highlighted by our interviewees and echoed in the literature. These barriers, described in detail in Section 3, include poor recruitment and retention of telehealth staff, few available providers willing to use telehealth technologies, insufficient space for telehealth (Alverson et al., 2004), absence of standardized protocols for credentialing clinicians across facilities and capturing and attributing workload, inadequate technical support, and complex and burdensome security requirements (Adle et al., 2001; Darkins et al., 2008). Implementing this policy option will primarily require additional staff, equipment, and network capacity (Alverson et al., 2004) to support telehealth expansion and address the challenges described.

To address some of these issues, VA could establish standardized protocols for telehealth workload capture and attribution, medical record documentation by remote providers, and provider credentialing for telehealth. Implementing a single system-wide memorandum of understanding allowing service delivery between sites might also be a consideration. In addition, it will be critical for Central Office, VISN, and facility leadership to support telehealth expansion by encouraging its integration into routine service provision, providing time and training opportunities for providers, and allocating more resources. Some of those goals might be achieved through the use of targets and incentives. For example, target utilization rates could be set for different modalities, or providers could receive financial inducements, similar to VA's new "workload credits" that credit providers for the time they spend exchanging messages with patients or performing electronic consults.

### 6.4.1.2.4 Evaluation

**Impact on access.** Expansion of telehealth in VA is likely to enable timely access to care (Agha et al., 2009; Wakefield et al., 2004; Whited et al., 2002; Whited et al., 2004; Wilkins, Lowery, & Goldfarb, 2007) in several different ways. Clinical video telehealth can facilitate contact between distant patients and providers and is particularly useful for patients in rural or otherwise underserved areas who face transportation barriers, poverty, and limited access to specialty care (Luptak et al., 2010). For example, one study conducted at five VAMCs and their associated CBOCs across eight states examined the use of clinical video telehealth to increase access to psychotherapy for Veterans with PTSD by connecting patients at the CBOCs to a dedicated mental health clinician at the associated VAMC. Study investigators found that the five participating sites averaged a threefold increase in unique patients seen and a 6.5-fold increase in psychotherapy sessions via video telehealth over a 21-month period compared with

the baseline; meanwhile, nonparticipating sites across the same region averaged increases of just 1.4-fold and 1.7-fold, respectively (Lindsay et al., 2015).

As discussed earlier, for some specialties VA could meet the projected demand without additional hiring if the demand could be better distributed within the existing workforce. Clinical video telehealth may be a promising mechanism for achieving this redistribution for some specialties. Psychiatry, psychology, and dermatology are particularly good candidates for clinical video telehealth from a technical standpoint, given that many visits that do not require physical touch or procedures.

CVT could also be leveraged to address inequities in access across geographical regions. For example, in VISNs such as VISN 3, 5, 10, and 17, where projected growth in demand is expected to be greater than the growth in supply (that is, workforce), telehealth might be used to redistribute that demand to other VISNs where supply might less of an access constraint, such as VISNs 8, 21, and 22. However, currently, 96 percent of all clinical video telehealth encounters occur within the same VISN (VA, 2015e). Increased use of CVT might be further targeted toward certain specialties within those VISNs that face significant capacity issues and are suitable for telehealth care, such as rheumatology, otolaryngology, and dermatology.

Clinical video telehealth might also indirectly improve access to care over the long term: As new users who previously lacked access to care realize better health outcomes and require fewer services over the long term, resources could then be reallocated to other parts of the system with greater needs. In previous studies of VA comparing telehealth to routine care, telehealth has been shown to reduce hospital, nursing home, and emergency/urgent care utilization (Begg et al., 1998), as well as primary care and outpatient need-based visits (Barnett et al., 2006b; Chumblor et al., 2005).

**Fiscal impact.** The costs of securing additional exam space, hiring staff, and purchasing the necessary equipment to expand telehealth in VA are likely to be significant. VA might be able to repurpose existing clinic and administrative spaces for telehealth but may still be constrained by the overall lack of space and persistent difficulties in hiring and training providers. However, if the capital investment were made, it is possible that cost savings would be realized over time (LeRouge & Garfield, 2013). A growing body of evidence highlights the cost-effectiveness of telehealth interventions related to decreased utilization of in-person care, including inpatient and outpatient care, pharmacy, and diagnostic tests (Baker et al., 2011; Cryer et al., 2012; Rojas & Gagnon, 2008; Rosenberg et al., 2012). In addition, telehealth has the potential to significantly reduce Veterans' costs pertaining to travel time, waiting time, and time off work (Field, 1996); telehealth initiatives from VA Office of Rural Health saved Veterans almost 8 million miles in travel in FY 2014, or approximately 38 miles per telehealth encounter.

**Stakeholder acceptability.** Patients and providers have been generally supportive of telemedicine as a cost-effective approach to increasing access to care. Patient satisfaction has consistently been high (Abrams & Geier, 2006; Allen & Hayes, 1995; Gustke et al., 2000; Hunkeler et al., 2000; Janca, 2000), indicating that public support of this relatively new technology is likely growing. Although further research is needed, some studies have also described provider satisfaction with health care delivery through telemedicine modalities (Kavanaugh, 1995; Weinstock, Nguyen, & Risica, 2002; Richards, 2005; Guillen, 2002; Larcher,

2002). This level of support suggests that the option to expand virtual access via telehealth would be politically feasible.

**Operational feasibility.** Expanding clinical video telehealth will likely involve several challenges, which Assessment H addresses. Expansion would likely require hiring additional staff, including clinicians who are trained in providing telehealth care, clinical support staff to collect medical data or administer certain procedures, and trained technicians to help set up the appointment and equipment (for example, an EKG for TeleCardiology) and provide technical support. Concrete steps are needed to address the problems with the transmission and assimilation of information (discussed in Subsection 3.5.4.2), as well as the exchange of data among providers, settings, and facilities (discussed in Subsection 3.5.5). Each telehealth site will need the necessary space in an environment where securing adequate exam and office space is already a significant challenge. Moreover, those spaces require audiovisual equipment, secure wireless Internet capabilities, and related diagnostic equipment. Finally, the administrative feasibility of this option is limited by the ability of VA's data network to respond to increased demands (Darkins et al., 2008). The organization will likely need to allocate dedicated network capacity to its telehealth program going forward and to be responsive to issues as they arise to ensure efficient workflow and provider productivity. In one study, clinicians reported spending considerable time responding to technical and connectivity problems instead of providing care (Hopp et al., 2006). In addition, interviewees noted that telehealth expansion requires new and additional scheduling processes that can put a strain on the host facility, and that, taken together with the need to operate new technology and manage technical issues, can consume more time than a traditional face-to-face visit. Consistent use of telehealth and the implementation of relevant protocols may minimize such administrative challenges over the longer term.

**Summary statement.** Expanding VA's telehealth program will require an upfront financial and administrative investment. However, the impact of telehealth on access through workload and workforce redistribution, the potential for cost savings, and strong stakeholder support suggest that expanding virtual access to care via clinical video telehealth is a highly promising avenue for improving VA's ability to provide timely and accessible care.

### 6.4.1.3 Other Options to Modify the Amount and/or Type of Resources

Other options that we considered but did not select for evaluation include increasing the number of support staff, increasing physical space for health care delivery, and integrating with the DoD military health system.

**Increase the number of support staff.** This option would focus on hiring more support staff to increase the productivity of health care providers including nurses, health technicians, medical assistants, clerks, schedulers, and administrative assistants. Although 22 percent of respondents (11 of 51 sites reporting delays in patients obtaining a new primary care appointment) on our Survey of VA Resources and Capabilities identified increasing other personnel as critically important to reducing delays in care, our key informants infrequently raised this option as a way to improve timely access to care. Instead, they more frequently advocated for more licensed independent practitioners (also reported by 43 percent of survey

respondents as critically important to reducing delays in care) to provide direct care. The impact of this policy option on access is highly dependent on (1) the extent to which support staff time is maximized for facilitating clinic workflow and (2) the availability of independent practitioners whose productivity might be improved through increases in support staffing.

**Increase physical space for health care delivery.** This option would entail purchasing or leasing new physical infrastructure, or repurposing existing physical spaces to be used for providing health care (for example, exam rooms, office space, medical equipment space). This option would face significant constraints in its implementation as well as its expected impact on access. First, the purchase or leasing of new space (assuming it is available in areas where it was needed) would require significant additional funding and would entail burdensome and lengthy procurement or contracting processes; the process would consume enough time that the initial need would likely far surpass actual capacity by the time the space is secured. Second, the impact on access would be wholly dependent on both the availability of physical space for purchase or lease in areas where it is needed as well as the availability of health care providers and support staff to utilize the additional space. The latter requirement underscores the need to ensure adequate health care workforce within VA as an antecedent to any consideration of acquiring new space for health care delivery. The likely fiscal impact and administrative complexity of this option, together with an impact on access that is highly dependent on other major variables, makes this option a less feasible approach to improving timely and accessible care in VA than others.

**Integrate with DoD military health system.** This option, in its most fully realized form, would entail integrating VA and DoD workforce and physical infrastructure to provide joint health care to Veterans and active-duty personnel and their families. It would likely require both a single governance structure to oversee joint operations as well as a single electronic health record system. Improvements in access to care under this option are highly dependent on the capacity that is created through such a merger. It is possible that additional capacity constraints might be created, particularly given the administrative hurdles and related “growing pains” of a newly created organization of this size. The financial and administrative complexity of integrating the two systems will be significant, likely detracting from any long-term potential cost savings, efficiency gains, or access improvements. Moreover, this option may not have strong stakeholder support as it could result in lost jobs, culture clashes, and the loss of a “Veteran-only” health care system. In a less ambitious form, this option might involve developing an interoperable electronic health record system so Veterans could access care at military treatment facilities if needed; however, VA’s history of unsuccessful attempts to build an interoperable electronic health record system point to a low likelihood of success in the near term.

### 6.4.2 Policy Options to Increase Productivity of Existing Resources

There are numerous options for improving the use of existing resources and making them more productive. Below, we describe and evaluate three options that were frequently raised in our interviews and in the published literature: (1) formalize full nursing practice authority throughout VA, (2) formalize task assignment in outpatient clinics, and (3) standardize return visit intervals for common conditions. Other options that we considered but did not select for

evaluation include eliminating inappropriate care, expanding care management programs for complex chronic conditions, and expanding working hours.

### **6.4.2.1 Formalize Full Nursing Practice Authority throughout VA**

#### **6.4.2.1.1 Overview**

This option would formally grant full practice authority for all advanced practice nurses (APNs) (that is, nurse practitioners, clinical nurse specialists, nurse anesthetists, and nurse midwives) across VA, superseding individual state laws governing scope of practice where applicable. This would include authority to, for example, evaluate and diagnose conditions, order and interpret tests, and admit patients without physician oversight. VA is currently considering changes to a VA Nursing Handbook that would expand the breadth of VA nurses' authority. In addition, H.R. 1247, the "Improving Veterans Access to Care Act of 2015," currently under consideration in the House Committee on Veterans Affairs, would give APNs in VA full practice authority.

#### **6.4.2.1.2 Rationale**

Allowing full nursing practice authority is often raised as a key approach to addressing physician workforce shortages and access problems in non-VA contexts, particularly in primary care (Carrier, Yee, & Stark, 2011; Wilson, 2008). A 2011 Institute of Medicine report, "The Future of Nursing: Leading Change, Advancing Health," suggests that removing scope of practice barriers and allowing APNs to practice independently could increase clinical productivity; substituting APNs for physicians across a wider range of health care services frees up physician time to handle more complex cases (Institute of Medicine, 2011). Results from the Chief of Staff module of our 2015 Survey of VA Resources and Capabilities show that 68 percent of respondents (76 out of 111 sites) identified providers performing clinical activities that could be performed by individuals with less training as a key issue negatively impacting provider and system efficiency.

VA is the largest employer of APNs in the nation (VA, 2010a; Domine et al., 1998; Faris et al., 2010). Data from our workforce analyses show that in FY 2014, VA utilized 3,626 nurse practitioners, 396 clinical nurse specialists, and 598 certified registered nurse anesthetists. Currently, the ability of APNs to practice independently varies widely across VA, with nursing scope of practice established at the facility level (VA Directive 2008-049: Establishing medication prescribing authority for APNs). To our knowledge, there is no systematic analysis of VA compared with non-VA use of APNs and scope of practice.

Interviewees noted that although some VA facilities formally grant full practice authority to APNs, many facilities implicitly defer to state laws (despite VA federal supremacy) that require nurses to collaborate with physicians or may even require formal physician supervision (Cassidy, 2012; Institute of Medicine, 2011; Pearson, 2012). Interviewees also revealed that full nursing practice authority can vary within facilities even at the department or team level, whereby APNs with more experience or established relationships with their physician partners are granted more leeway. Although some observers have described VA as being at the vanguard in the use of APNs with respect to both numbers employed and relative autonomy in

clinical care (Huang et al., 2004; Robinson & Petzel, 2010), the variation in how they are utilized and the extent to which they are allowed to practice independently has been highlighted as a critical barrier to achieving optimal use of VA resources and capabilities (Kizer & Norby, 1998).

### 6.4.2.1.3 Implementing Steps

The cornerstone of this option is standardizing full practice authority for APNs across the VA system. A first step to implementing this option could be to endorse and implement proposed changes to VA's nursing handbook that would recognize APNs as independent practitioners authorized to provide patient care without physician supervision. The revised handbook would standardize processes and formally recognize the expanded scope of practice throughout the system (VA, 2011b). Subsequently, new scope of practice protocols would be required to clearly specify the expanded scope of nursing practice (Mohler et al., 1998), similar to the national templates previously proposed by former Undersecretary of Health Kenneth Kizer (Kizer & Norby, 1998). This might require forming an expert consensus panel to determine relevant qualifications and minimum standards for allowing expanded scope of practice. For example, recent legislation in New York State enacted in January 2015 allows nurse practitioners with over 3,600 hours (approximately two years) of clinical practice to practice independently (that is, without a written collaborative agreement with a physician) but does not change scope of practice rules for nurse practitioners with under 3,600 hours of practice (New York State Assembly, 2013). Nurse providers would have to engage in additional training and certification to meet standards for full practice authority, and undergo routine performance evaluations according to a prespecified schedule. Continuing medical education programs would have to be developed to sustain nursing skills relevant to full practice authority. Existing nursing oversight bodies may need to be restructured to address new regulations under an expanded scope of practice; Dr. Kizer had previously recommended funding an Advanced Practice Nursing Council to be responsible for licensure, role, and scope of practice protocols, as well as education and training opportunities (VHA, 1997). In addition, the establishment of professional standards boards for APNs at the local or network level to provide consistency in the development and interpretation of relevant rules and regulations will be needed.

### 6.4.2.1.4 Evaluation

**Impact on access.** An option to formalize full practice authority might impact access in two ways: (1) It could allow APNs to spend less time on tasks such as reviewing clinical decisions with a supervising physician and more time providing direct patient care, and (2) it could allow physicians to spend less time supervising APNs and more time caring for patients. Quantitative data on the effect of full practice authority on access as a result of additional time for patient care are limited and mixed. Although it is clear that following scope of practice regulations is time-consuming for both the nurse and the physician, it is unclear how much of that time could and would be redirected to patient care. One study found that APNs in states allowing full practice authority worked 11 percent more hours per year than APNs in states with scope of practice restrictions—but that physicians worked 6 percent fewer hours, presumably because independently practicing APNs were picking up the patient care duties (Kleiner et al., 2014). In contrast, another study found that physicians increased their direct patient care hours by 8



percent, given that they spent less time supervising APNs (Traczynski & Udalova, 2013). There are some data to suggest that granting full nursing practice authority could increase the supply of APNs due to either more entrants to nursing programs or nurses relocating to states with expanded scope of practice laws (Kalist & Spurr, 2004). Under an expanded scope of nursing practice, VA may be able to attract more APNs from the private sector in states that have scope of practice restrictions, which is particularly salient for states with large rural areas where VA might be struggling to ensure an adequate provider workforce.

Finally, some data suggest that the total amount of care provided to patients might increase with full nursing practice authority. One study found a 2-percent increase in number of office visits when state scope of practice was expanded, and the percentage of patients receiving preventive care and reporting timely and accessible care increased by as much as 10 percent on some measures (Traczynski & Udalova, 2013).

Indirect evidence also supports the positive potential impact on access that formalizing independent nursing might have, particularly through better use of APNs in clinical practice. For example, APNs in the private sector see twice as many patients per day as a VA APN, suggesting considerable room for improvement in VA's use of APNs as clinical providers (Mohler et al., 1998), which might be achieved via relaxed scope of practice regulations. Data also suggest that APNs can function effectively as physician substitutes in VA primary care given similarities in the patterns of patient encounter characteristics across provider types (Morgan et al., 2012). In addition, a substantial body of literature shows that important health outcomes—including disease-specific physiologic measures, reduction of symptomatology, mortality, hospitalization and other utilization measures, and patient satisfaction—are comparable between patients served by APNs and those served by physicians (Grumbach et al., 2003; Horrocks, Anderson, & Salisbury, 2002; Laurant et al., 2009; Laurant et al., 2005; Mundinger et al., 2000; Naylor & Kurtzman, 2010; Wilson et al., 2005).

This option could impact access in both primary and specialty care settings. Nurse practitioners are a core member of VA's primary care Patient Aligned Care Team model and are widely used in chronic conditions management, which can involve specialty services (for example, endocrinology for diabetes management, cardiology for heart failure management) (Newhouse et al., 2011). APNs have also been increasingly used in geriatrics, with the launching of an adult-gerontology clinical nurse specialist board certification in 2013. Finally, under this option clinical nurse anesthetists might be more widely used in inpatient and surgical settings.

**Fiscal impact.** Evidence regarding the possible fiscal impact of this option is also mixed but suggests the potential for cost savings. APNs are a less expensive alternative to physicians for providing direct patient care. Prior research in non-VA settings demonstrates that substituting some APNs for physicians (for example, five APNs and three physicians versus eight physicians) in a collaborative practice model results in significant cost savings over time (Bosque, 2015) given salary differences. More efficient use of APN time in clinical practice might also decrease costs; one study found that when APNs in retail clinics were allowed to practice independently, the clinics' cost savings were greater than when they could not practice independently because of state scope of practice regulations (Spetz et al., 2013). Although cost calculations may be

different between VA and non-VA—particularly in fee-for-service settings—these findings point to the potential savings that might be realized through more efficient use of APNs in practice.

On the other hand, if granting full practice authority increases access to care, the total amount of services provided might escalate, increasing overall costs. One study found that total spending on office visits (that is, all office-based settings for physician and APN care) was 4.3 percent higher in states with full practice authority than in states with scope of practice restrictions (Stange, 2014). However, increases in spending related to greater access to primary and preventive care could be offset by savings from reduced utilization in more intensive settings; for example, one study found reductions in ambulatory-sensitive emergency department visits (Traczynski & Udalova, 2013). Some have argued that APNs might contribute to costs because they tend to order more diagnostic tests than physicians do (Jauhar, 2014; Medical Society of the State of New York, 2015), presumably to compensate for differences in training and knowledge; however, this assertion is often based on a study published in 1999 that did not directly estimate the effect of expanding nursing practice authority on costs but simply compared nursing to physician practices.

The estimated implementation costs of this option are relatively low, and the option may reduce costs over time. There will likely be costs associated with developing new and expanded scopes of practice and standardizing them across VA, communicating and educating providers and staff about the expanded nursing authorities, and training and credentialing to appropriately reflect the expanded scope. These costs may be at the individual facility level or structured through VA Nursing Academy Partnership, which provides training at 18 academic nursing partnership sites across VA.

**Stakeholder acceptability.** This option could face strong political opposition from physician advocates within and outside VA. Allowing full nursing practice authority has historically been a controversial topic, and physician reluctance to accept the expanding role of nonphysician practitioners remains a persistent cultural barrier that will require sustained and intensive attention by VA leadership and beyond to overcome (Kizer & Norby, 1998). Physician organizations including the American Medical Association have been vocal in their ongoing opposition to allowing full nursing practice authority particularly in response to the recently proposed scope of practice changes to VA’s nursing handbook (Beck, 2014). A recent JAMA commentary by three VA physicians (Bakaeen, Blaustein, & Kibbe, 2014) recommended that VA hire more physicians, nurses, and support staff to care for the increased number of VA enrollees, but warned against hiring nurse practitioners and physician assistants to replace primary care physicians, stating that “This is not the time to test unproven and controversial solutions” (p. 481). Physician organizations often state that substituting APNs for physicians may put patients at risk for poorer outcomes despite a lack of evidence to support this claim. Stakeholder acceptability might be fostered by emphasizing evidence supporting the ability of APNs to provide care that is as safe as the care provided by physicians (Fairman, 2008; Groth, Norsen, & Kitzman, 2010; Hatem et al., 2008; Hogan, 2010; Horrocks et al., 2002; Hughes, 2010; Laurant et al., 2004; Dulisse & Cromwell, 2010; Newhouse et al., 2011; Laurant et al., 2009; Jackson et al., 2011; Ohman-Strickland et al., 2008; Lenz et al., 2004). Establishing a consensus-based minimum standard for clinical experience before an APN is granted full practice

authority, as New York State has done, will likely be critical to facilitating stakeholder acceptability.

Strong physician opposition may also stoke patient and Veteran reluctance to support this policy option, although evidence regarding patient preferences for physicians versus APNs remains mixed. As an example, one survey commissioned by the American Academy of Family Physicians found that patients preferred and trusted physicians over nurse practitioners (Porter, 2013), while another study using survey data from the AHRQ found that patients reported better experiences with care from APNs compared with physicians (Creech, 2011).

Due to persistent physician workforce shortages and concerns related to health insurance expansion, state legislatures are increasingly receptive to expanding scopes of practice for nurses, which could contribute to this option's successful implementation in VA. To date, 20 states and the District of Columbia have given APNs practice autonomy, and several other states are considering it (Phillips, 2014). The Institute of Medicine's first recommendation in its *Future of Nursing* report was to "remove scope of practice barriers." This growing political support for full nursing practice authority in the broader context of access delays, increasing demand for primary care, and workforce shortages may soon offset the political challenges historically raised by physician advocacy groups.

**Operational feasibility.** Once endorsed, this option would likely require time to fully implement as new scopes of practice are drafted and care protocols developed. It would require coordination and partnership among several different VA offices, including but not limited to the Office of Nursing Service, Office of Patient Care Services, several Clinical Operations offices (for example, Primary Care Operations, Mental Health Operations, Geriatrics and Extended Care Operations), and network and facility directorship, to ensure that APNs begin to practice independently in a consistent and guideline-concordant manner. The Central Office-level policy change would have to be appropriately communicated through the regions down to the facility level, and monitored and evaluated for an initial implementation period, with feedback processes built in. Nursing leadership—both at VA Central Office and the facility level—may need to provide additional oversight and develop evaluation processes to incorporate expanded scopes. Additionally, new training and continuing education protocols would have to be developed and implemented to support expanded nursing scope of practice.

**Summary statement.** Formalizing full practice authority for APNs would likely be a cost-effective approach to increasing the productivity of VA's existing workforce. However, entrenched political barriers to enactment may limit uptake and challenge full implementation in practice, making this a longer-term solution rather than an immediate fix.

### 6.4.2.2 Formalize Task Assignment in Outpatient Clinics

#### 6.4.2.2.1 Overview

This option would formally assign clinic tasks according to job function, with a focus on maximizing the use of clerical and clinical support staff to make physicians more productive and optimize clinic workflow. Our interviews revealed a prevailing perception that staff performs clinic tasks on an "as available" basis rather than being assigned tasks that match their skills and

training. Interviewees noted that this was in large part due to available clerical and clinical support staff not taking on relevant tasks or not completing them in a timely manner, and in smaller part due to inadequate staffing. They also cited confusion about which tasks could be assigned to clerical and clinical support staff rather than providers. Explicitly assigning tasks based on skill level and training could ensure that specialized personnel such as physicians spend their time on direct patient care activities rather than paperwork.

### 6.4.2.2.2 Rationale

Interviewees at VA medical centers and CBOCs regularly raised the concern that clinic workflow was inefficient due to lack of clear expectations regarding task responsibilities as well as a lack of accountability among administrative and clerical staff for task completion. Physicians we interviewed reported spending a significant amount of time completing what were described as “below-license” tasks such as bringing patients from the waiting room to the exam room, collecting vital signs, and completing pre-visit paperwork. In addition, they often noted that they were increasingly tasked with addressing pre-visit screening and prevention protocols that are often performed by lower-level staff in the private sector. Sometimes these challenges were ascribed to “cultural issues” among VA support staff (for example, a reluctance to take on more work), and other times they were attributed to restrictive VA policies and protocols. These are described in greater detail as capacity constraints in Subsection 3.2.4. These issues are not limited to physicians; VA nurse practitioners have reported spending an increasing amount of time on administrative tasks over clinical tasks and not fully utilizing their training and expertise (Fletcher et al., 2007). Results from the Chief of Staff module of our 2015 Survey of VA Resources and Capabilities show that 84 percent of respondents (94 out of 111 sites) identified providers performing administrative activities that could be performed by others as a key issue negatively impacting provider and system efficiency. This issue ranked second among factors impacting provider and system efficiency. (“Too many administrative requirements” was first with 96 out of 110 sites reporting it as an issue.)

Research evidence echoes our interview findings regarding how tasks are currently performed. A functional job analysis conducted in VA primary care found that staff at all job titles (clerks, health technicians, licensed vocational nurses, registered nurses, APNs, and physicians) were performing tasks of all kinds, rather than only those related directly to their job function (for example, all clerical tasks to clerical personnel and all clinical duties to clinical personnel). This included clerks performing service delivery tasks such as patient education and coordination, and physicians performing administrative tasks such as completing paperwork or maintaining patient records (Hysong, Best, & Moore, 2007). The most consequential implication for efficiency is that higher-trained VA personnel are performing tasks that do not require their level of training. A related VA study identified significant task overlap among occupational groups; for example, physicians reported performing 69 percent of the tasks also being performed by health technicians, 45 percent of the tasks also being performed by clerks, and 64 percent of tasks also being performed by licensed vocational nurses (Best et al., 2006). Clerks reported the lowest percentage of task overlap with other occupational groups, executing 13–14 percent of tasks also performed by physicians and nurse practitioners, 24 percent of tasks also performed by registered nurses, 26 percent of tasks also performed by licensed vocational

nurses, and 50 percent of tasks also performed by health technicians. This indicates that it would be possible to reallocate certain tasks across occupational groups to increase productivity, particularly shifting low-complexity tasks from advanced practitioners to clerks and health technicians.

### 6.4.2.2.3 Implementing Steps

Implementing this policy option would require the systematic identification of all clinic-related tasks in VA through a functional job analysis (Fine & Cronshaw, 1999), building on previous research done in VA (Best et al., 2006; Hysong, Best, & Moore, 2007; Pugh, 2001) and in other settings (Burgel et al., 1997; Mbambo, 2003; Salazar et al., 2002; Soh, 1998). Developing a task database is likely to be useful for cataloging identified tasks according to job function, skill level, and training (Best et al., 2006). After clinic tasks are identified and catalogued, expert input and consensus on the assignment (or reassignment) of these tasks by job title and function would be necessary. Prior work has shown that using standardized guidelines, protocols, or checklists can aid the transfer and assignment of clinical tasks between physicians and nurses, for example (Macdonald et al., 2013; Thomas et al., 1999); a similar approach might be useful in assigning tasks across all clinic staff. Task assignment might be a function of who is best suited to do the work based on skills and training as well as the impact of task assignment on patient safety (that is, the most consequential tasks would be assigned to workers with the greatest skill and training). Ideally, a template for the formal assignment of tasks could be created, with built-in flexibility for making actual assignment decisions at the facility level that consider contextual factors such as staffing levels, clinic layout, and primary care team relationships.

### 6.4.2.2.4 Evaluation

**Impact on access.** There is no direct evidence of the impact of formal task assignment on access to care, but it has been suggested that task assignment is critical because it minimizes constraints in clinic flow and improves patient throughput (Best et al., 2006). For example, a health care provider who spends time checking a patient into a room and completing paperwork instead of delivering hands-on care has less time to spend with subsequent patients, resulting in a backlog that impacts future appointment availability. Relieving higher-trained personnel of responsibility for low-complexity tasks would allow more time for patient care and make better use of their skills and training. Assuming that improvements in task assignment contribute to provider productivity and thus greater access to care, implementing this option system-wide could help to address inequities in access across facilities and regions. Facilities where providers are performing clerical tasks and clerical staff are not optimally utilized would likely see significant improvements in productivity and access on par with access at higher-performing facilities where clinic tasks are already assigned and completed efficiently.

**Fiscal impact.** There is a lack of economic data available to estimate the fiscal consequences of task assignment, although a systematic collection of relevant economic measures has been proposed (Dierick-van Daele et al., 2008) and may contribute to future estimations. To the extent that task assignment leads to task shifting from more expensive personnel, this option is likely to realize some savings over time. For example, in a VA study of primary care task overlap, the authors found that registered nurses performed 97 percent of the same tasks that licensed

vocational nurses performed. Implementing this option may require funding to ensure that clinics have the right mix of personnel for the optimal assignment of tasks. While our interviewees underscored gaps in the productivity of existing support staff, they also highlighted workforce shortages. Understaffed clinics may not have enough staff to perform all clinic-related tasks efficiently regardless of how they are assigned, and it may be the case that higher-trained personnel have no choice but to perform lower-complexity tasks. However, this option, if fully implemented, is likely to realize cost savings over time, given the costs associated with using highly trained providers to perform low-complexity tasks. Our interviewees frequently commented that using physician time to perform clerical tasks in the absence of any guidelines regarding task mapping or assignment was a particularly expensive solution.

**Stakeholder acceptability.** Staff members' resistance to additional tasks or reassignment of tasks could be a barrier to successfully implementing this option. While some staff will face additional workload, others may be reluctant to relinquish certain responsibilities. Unions may or may not support this option based on how the shifting workload is perceived. Physicians' concerns about scope of practice may make them reluctant to cede clinical tasks to lower-level providers. There may be concerns about lack of customization in clinic workflow, so flexibility in task assignments should be clearly delineated to allow tailoring of work assignments as clinic needs dictate. Staff buy-in and, where relevant, union support, will be critical through the task identification and assignment phases.

**Operational feasibility.** Ensuring that assigned tasks are completed will be a critical component of this policy option. This may require changes in contracts and union involvement in drafting these changes. In addition, establishing standardized protocols describing task assignments, guidelines, and checklists to ensure adherence to assignments creates an additional layer of bureaucracy that will require systems and processes for oversight and enforcement. With the proposed option, section heads and service chiefs will need greater authority to enforce and evaluate task assignment, including the ability to penalize underperformance. This option will take time to fully implement, particularly as new processes are formalized and staff is trained in these processes.

**Summary statement.** Formalizing task assignment is one approach to improving health care providers' productivity by ensuring task completion according to skills and job function, with an indirect impact on access. This option would require implementation of new administrative processes and changes to existing reporting and accountability structures that may prove challenging to enact over the short term.

### 6.4.2.3 Standardize Evidence-Based Follow-up Visit Intervals for Common Chronic Conditions

#### 6.4.2.3.1 Overview

This option would standardize times for VA follow-up visits for common chronic conditions based on scientific evidence. A substantial portion of outpatient clinic visits are follow-up visits: 56 percent of the 1 billion office visits nationally in 2009 (including but not limited to VA) were follow-up or preventive care visits, while 42 percent were evaluations of a new problem or the

exacerbation of a chronic condition (Centers for Disease Control, 2010). In both VA and non-VA health care, follow-up visit intervals vary widely, with little evidence-based guidance for determining optimal intervals. Setting intervals based on scientific evidence may allow certain follow-up times to be extended, which would reduce the overall number of clinic visits per capita in a given time period and increase appointment availability for other patients or for emergent issues. As an example, if two providers with the same number of appointment slots each week have different follow-up visit intervals, on average—for example, the first mean interval is four weeks and the second is eight weeks—the second provider could see twice as many patients as the first provider in a defined time period. In some cases, shortening follow-up visit intervals (where supported by evidence) might initially increase the number of face-to-face visits and create additional access challenges, but may lead to lower utilization overall as patients are managed more appropriately.

### 6.4.2.3.2 Rationale

Current VA practices for determining follow-up intervals vary widely across providers (Welch et al., 1999), from as short as one week to as long as 12 months (Schwartz et al., 1999). This variation is explained only in part by the actual medical needs of the patient (DeSalvo et al., 2000; Kravitz et al., 1992; Welch et al., 1999); other important factors include whether the initial visit occurred on a “hectic” day (Schwartz et al., 1999) and how far the patient would have to travel to the clinic (Welch et al., 1999), with distant patients assigned longer intervals for follow-up visits. Follow-up intervals also vary with individual physician characteristics such as gender; one study found that female providers assign shorter intervals than male providers, independent of other factors such as patient stability (DeSalvo et al., 2000).<sup>71</sup> Provider training is an important factor as well. Providers are often taught to routinely schedule their patients with chronic conditions every three or four months regardless of disease severity (Schechtman et al., 2005). Follow-up intervals are therefore likely influenced by the styles and preferences of individual clinicians and the educators to whom they are exposed.

In some cases, providers may assign follow-up times based on a perception that frequent contact is necessary to achieve therapeutic goals (Schechtman et al., 2005), despite evidence to the contrary. For example, patients who are being managed for hypertension are typically seen every six months, although data from a randomized clinical trial demonstrated that a six-month interval was too short to accurately measure clinically significant changes in hypertension due to treatment (Keenan et al., 2009). In some cases, more frequent contact may even result in negative consequences, although this needs further investigation. In a randomized study of an intervention to increase contact with primary care providers following hospitalization among Veterans with diabetes, chronic obstructive pulmonary disease, or congestive heart failure, the

---

<sup>71</sup> More recent data on follow-up interval practices were not identified through our literature review. The growing use of electronic medical record platforms for managing patient information over the last decade may have facilitated interval assignment based on clinical need or other relevant patient factors, and additional research to evaluate this is warranted.

increased contact was actually associated with increased readmission rates and more days of rehospitalizations compared with usual care, with no difference in patient-reported quality of life (Weinberger, Oddone, & Henderson, 1996).

As part of our wait-time analysis (Subsection 4.2), interviewees routinely indicated that they preferred to define appropriate times between visits for a given condition or population of patients (and consequently appropriate wait times for appointments) based on clinical and scientific evidence. However, there is little scientific evidence regarding the optimal follow-up interval for conditions commonly seen and managed in primary care. A few older studies (Gordon & Webb, 1984; Dittus & Tierney 1987; Stern et al., 1991; Tobacman, Zeitler, Cilursu, & Mori, 1992) have focused on identifying factors and variability associated with follow-up visit intervals rather than on modeling optimal intervals. The wide variation in follow-up visit intervals in VA and the fact that intervals are predominantly determined by factors other than scientific evidence or clinical need underscores the salience of evaluating and standardizing optimal timing of follow-up visits.

### 6.4.2.3.3 Implementing Steps

Determining the appropriate intervals based on their impact on patient outcomes is critical. Implementing this policy option depends on building the evidence base regarding follow-up intervals for conditions common in VA's patient population. VA's well-established research and development infrastructure might lead such an effort. Initial work could focus on chronic conditions that require regular follow-up for primary care management and on those that account for the greatest number of outpatient visits such as hypertension, arthritis, chronic obstructive pulmonary disease, back problems, and mental disorders (Agency for Healthcare Research and Quality, 2012). In addition, provider retraining will be critical to assuring that follow-up visit intervals are appropriately modified. Provider retraining is an important change concept already recommended to increase access (Kilo et al., 1999; Murray & Berwick, 2003; Murray et al., 2003), and at least one study suggests that provider decision-making regarding the follow-up visit interval can be significantly modified by education and feedback to extend intervals without compromising patient outcomes (Schechtman et al., 2005). VA's IT infrastructure could help support these shifts by building evidence-based follow-up appointment timing into scheduling systems that a provider could override if appropriate.

### 6.4.2.3.4 Evaluation

**Impact on access.** The impact of standardizing follow-up visit intervals is highly dependent on the number of appointment slots that could be created, which depends on whether existing intervals are extended or shortened. There is little evidence to indicate what direction the effects might take or what their magnitude might be, but one study at a large VAMC found that extending follow-up intervals in primary care reduced primary care visits by 27 percent and specialty care visits by 14 percent with no adverse impact on patient outcomes (Schechtman et al., 2005).

**Fiscal impact.** The main direct fiscal impact would be funding to examine return visit intervals and retrain providers, which might be achieved through VA's current research budget. This



option could also lead to changes in utilization, although the direction and magnitude of this effect are difficult to predict. One study found that extending follow-up visits for hypertension by one month could lead to a 15 percent decrease in the number of visits in one year and savings of approximately \$682 million annually. Extending the interval by three months could lead to an estimated 34 percent decrease in the number of visits in a year and a potential cost savings of \$1.5 billion (Javorsky, Robinson, & Boer, 2014).

**Stakeholder acceptability.** Some patient and Veteran advocacy groups may misperceive extending return visit intervals as delaying or withholding care and thus potentially harming patients. Establishing and communicating evidence will be critical to assuaging any concerns and supporting evidence-based service delivery. Staged implementation to match and advance the evidence-building process (for example, extending intervals for a single condition at a time) could also help address any unintended consequences of implementing this option.

**Operational feasibility.** A primary barrier is the time required to build an adequate evidence base around return visit intervals to guide standardization of follow-up times, as well as the time it could take to train providers, collect data on implementation progress, monitor implementation and impact, and provide feedback to providers to support ongoing training. Designing and implementing studies that identify optimal follow-up visit intervals is technically challenging. In addition, clinic support staff may need to be trained to manage an increased volume of telephone contact, triage patient complaints, and address minor issues to the extent that these activities replace face-to-face visits. Expanding the registered nurse role might be a cost-effective approach for between-visit monitoring and might include nurse-run disease management programs (Herbert et al., 2008), which could be telephone-based (Dunagan et al., 2005), or nurse triage and consultation by phone (Campbell et al., 2015). Use of a patient portal (for example, MyHealtheVet) for secure messaging with providers might also be utilized to support extended follow-up visit intervals.

**Summary statement.** Standardizing return visit intervals based on scientific evidence would help to optimize the use of VA health care resources. It could improve access through gains in capacity achieved by prolonging visit intervals or by improving patient outcomes through better disease management over shortened visit intervals. This option depends on gathering adequate evidence on optimal intervals.

### 6.4.2.4 Other Options to Increase Productivity of Existing Resources

Other options that we considered but did not select for evaluation include eliminating inappropriate care, expanding care management programs for complex chronic conditions, and expanding working hours.

**Eliminate inappropriate care.** This option would use performance improvement strategies to eliminate services where the potential health benefit to the patient is less than the potential harm. Although this would improve the quality of patient care and some evidence suggests that reducing inappropriate care could result in cost savings over time, the impact of this option on access is highly uncertain and at best, indirect and long-term. For example, it is possible that over the long-term, any cost savings realized by the elimination of inappropriate care could be reallocated toward increased delivery of appropriate and necessary care, but this is highly

speculative. In addition, this option would require significant administrative oversight and enforcement to implement, including processes for identifying and quantifying inappropriate care, and approaches for communicating improvement strategies to Veterans and their family members. Any option aimed at reducing the overall care provided to Veterans is likely to be met with significant opposition, greatly diminishing stakeholder support. The highly uncertain impact on access of this option, as well as the significant operational and political barriers to adoption and implementation indicate that this is likely to be an infeasible approach to improving timely and accessible care in VA.

**Expand care management programs for complex chronic conditions.** This option would provide additional resources for care management programs focused on high-need, high-cost patients (that is, those with complex chronic conditions and/or multimorbidity) to support improvements in care coordination across settings, overall quality of care provided, and patient outcomes. Implementation might include a range of strategies such as greater use of group appointments to address self-management and collect basic clinical measurements, increased hiring of nurse care managers, increased use of telephonic support services to address minor concerns between appointments, informatics-based disease monitoring programs or remote monitoring, nurse home visits, and care transitions support. VA has an established foundation in this area, including the Patient Aligned Care Team primary care medical home model, as well as a growing use of group visits and nurse care managers. This option would simply dedicate additional resources to expanding current efforts. The impact on access would be highly indirect and grounded in the assumption that improved management would lead to better patient outcomes, which would consequently translate into decreased utilization, at least of resource-intensive care. This freed-up capacity could then be reallocated to other patients; however, this potential pathway toward increased access has yet to be conclusively demonstrated. In addition, this option requires considerable fiscal investment and could be an administrative burden depending on the strategies chosen for implementation. Despite potential stakeholder acceptability, these considerations suggest this option is likely not the most direct or feasible approach to improving VA's ability to provide timely and accessible care.

**Expand working hours.** This option would expand normal clinic operating hours at VAMCs to evenings (for example, 4:30 pm to 6:30 pm) and weekends (for example, Saturday 8:00 am to 1:00 pm) to increase access to care in a manner that is responsive to Veteran needs. For example, Veterans who hold traditional, full-time jobs or who are primary caregivers for a dependent child or parent may benefit from such an option to expand access to care. However, the impact on access of this option is uncertain and highly dependent on the availability of providers and support staff to work extended hours, which may detract from stakeholder support of this option. Unions in particular may be reluctant to support extending working hours without adequate compensation—including overtime—and protection. There may be significant costs associated with this option, in terms of both compensating personnel for working extended hours and keeping facilities and equipment operating over longer periods.

### 6.4.3 Subsection Summary

**Policy options to modify the amount and/or type of resources available for VA care.** Adding more physicians to VA's workforce is a potentially effective approach to improving access, but

its short-term impact is significantly constrained by the high cost of hiring more physicians, the lack of infrastructure to support an expanded workforce, and the bureaucratic challenges related to hiring in VA. Expanding VA's telehealth program will also require a financial and administrative investment. However, its potential impact on workload and workforce redistribution, the potential for cost savings, and strong stakeholder support suggest that this is a highly promising avenue for improving VA's ability to provide timely and accessible care.

**Policy options to increase productivity of existing resources.** Formalizing full practice authority for APNs would likely be a cost-effective approach to increasing the productivity of VA's existing workforce. However, political barriers to enactment may limit uptake and challenge full implementation in practice, making this a longer-term solution rather than an immediate fix. Formalizing task assignment can improve providers' productivity by ensuring task completion according to skills and job function, with an indirect impact on access. This option would require new administrative processes and changes to existing reporting and accountability structures that may prove challenging over the short term. Standardizing return visit intervals based on scientific evidence would help to optimize the use of VA health care resources by prolonging visit intervals or by improving patient outcomes through better disease management over shortened visit intervals, but more evidence is needed on potential impact.

## 6.5 Selected Policy Options to Enhance Access Outside VA

VA has the authority to purchase care from the private sector when needed. This has usually been exercised in cases where necessary care is geographically or temporally distant, and determined through a combination of physician evaluation of clinical necessity and patient preference. In this section, we evaluate options for (1) improving the productivity of existing resources by consolidating existing purchased care programs and (2) increasing the amount of resources for enhancing timely access to care outside VA.

### 6.5.1 Policy Options to Modify the Amount and/or Type of Resources

This group of policy options would modify the type and quantity of external resources that are purchased by VA. These options are qualitatively different from the other options discussed in this report because they would represent a significant strategic shift for VA. There are options along the continuum from the status quo (contract out some services for enrollees with limited access) to purchasing all Veterans' health care from non-VA providers. Selecting which services should be delivered by non-VA providers involves both strategic and technical questions, and is beyond the scope of this assessment. In this subsection, we describe several examples only to illustrate the option, and we discuss considerations in developing this type of policy option. The examples we discuss represent two distinct points along the continuum of possibilities for significantly increasing the use of purchased care: (1) outsourcing certain services and (2) outsourcing all Veteran care so that VA functions as a payer rather than provider of health care services.

### 6.5.1.1 Increase Purchased Care Use by Outsourcing Certain Services

VA could identify certain services that would no longer be provided within VA and instead be purchased from non-VA providers based on issues of scale, resources available, cost, and patient outcomes. This would have the dual objective of reserving available resources within VA for the organization's "core business" and facilitating timely access to other care for Veterans via non-VA providers. In contrast to VA's current approach to outsourcing, which is based on individual patient need and access, this option would seek to strategically identify and outsource entire service lines based on an overarching strategy or guiding principle, which could include timely access, patient outcomes, and/or costs expected to be favorable in non-VA settings. This decision might vary across geographic regions depending on supply and demand within VA and the private sector.

As a hypothetical example, VA might identify some surgical services that are provided at low volumes at VA facilities and high volumes at nearby non-VA facilities. Evidence from health services research has indicated a relationship between higher procedure volume and better outcomes (Bach et al., 2001; Begg et al., 1998; Birkmeyer et al., 2002; Birkmeyer et al., 2003; Carey et al., 2005; Ho et al., 2006; Luft, Bunker, & Enthoven, 1979; Wen et al., 2006), and conversely between low-volume care and poor outcomes, including higher mortality rates (Sternberg & Dougherty, 2015). This option could also potentially allow VA to reduce the fixed cost of maintaining capabilities for selected surgical services, such as specially trained support staff and high-tech equipment. VA might leverage its existing partnerships with academic medical centers that have higher demonstrated procedure volume, although even academic centers have been recently challenged to identify and limit many lower-volume surgeries (Sternberg, 2015).

A more extreme approach would be for VA to focus its direct care delivery on certain core services. The definition of core services would need to be developed, but one possibility would be to identify the services for which VA has the greatest advantages as an integrated delivery system and direct provider of care—for example, services for which care coordination is critical or in which VA holds specialized expertise. Candidates for core services include primary care, mental health care, and care pertaining to certain service-related disabilities and illness (for example, spinal cord injury, TBI, vision loss, and prosthetics and rehabilitation).

#### 6.5.1.1.1 Evaluation

**Impact on access.** The impact of this option is highly uncertain. It would depend on the volume of services provided by non-VA providers and the relative accessibility of non-VA and VA provision of those services. The volume and accessibility of services would depend on VA strategic decisions as well as the capacity of non-VA providers.

**Fiscal impact.** The fiscal impact of outsourcing low-volume surgical services is uncertain and dependent on both the amount of services shifting from VA to non-VA providers and the relative cost of VA versus non-VA services. As discussed in Subsection 3.1, existing data do not allow for comparisons of VA versus non-VA costs of health services. If large amounts of care are outsourced, some Veterans may shift from using private insurance to using VA purchased services, increasing total VA costs.

**Stakeholder acceptability.** Several important stakeholder groups, including Veterans and VA providers, could be opposed to shifting care from VA to non-VA providers. As identified in our interviews, many Veterans prefer to receive their care from VA and are concerned that outsourcing care is a “slippery slope” that will lead to reduced health care coverage over the long term. VA providers are likely to be concerned about potential job loss if large portions of care are outsourced. In addition, there may be concerns about how decisions are made for outsourcing certain services over others. A clear rationale for outsourcing care (beyond the current wait-time and 40-mile criteria) would need to be established and agreed upon. A recent move by VA to outsource Hepatitis C care to non-VA providers due to a depletion of internal funds for antiviral treatment has been met with strong stakeholder criticism in large part because it appears that a priority system based on patient characteristics (for example, limited life expectancy or vegetative state) is being used to make the outsourcing determination, raising questions about the ethics of the process (Wagner, 2015). Stakeholder buy-in will be critical to the success of any option aimed at increasing VA’s use of purchased care. Importantly, purchasing selected services could allow VA to continue to directly provide most care to Veterans and minimize these impacts.

**Operational feasibility.** Administration of this option would face significant barriers. At a minimum, the option would require new contracts or other partnership agreements, which would be challenging given the significant administrative burdens associated with VA contracting as reported by many of our interviewees. Another barrier is the logistical task of coordinating care between VA and non-VA providers. VA has considerable experience with care coordination within its system. Eliminating large portions of its current care delivery would detract from advantages VA’s system derives from its integration. If acute and specialty care were provided in the private sector, VA primary care would need to serve as a coordinating point, but medical information would need to be shared across multiple providers and organizations.

**Summary statement.** The effect of increasing purchased care use by outsourcing certain services is highly uncertain and would depend on the volume of services provided by non-VA providers and the relative accessibility of non-VA and VA provision of those services as well as VA strategic decisions. This option might face opposition from important stakeholder groups, including Veterans and VA providers, as well as administrative barriers, including the need for new contracts or other partnership agreements, which would pose a significant administrative burden.

### 6.5.1.2 Redefine the Role of VA as Payer Versus Provider

This option would entail a radical shift in VA’s mission and structure. It would outsource all Veteran care to the private sector, making VA a payer instead of direct provider of health care services. Some observers have questioned whether a separate health care delivery system is a necessary and efficient approach to caring for the nation’s Veterans (Concerned Veterans For America, 2014). This option represents a major and complex reform that requires evaluation beyond the scope of this assessment; here we present a few key elements of such an option.

The general approach of this option would be to provide Veterans with health insurance coverage rather than eligibility for VA care. For example, VA could offer premium (and other cost-sharing) support for Veterans to purchase private insurance coverage. Another approach might be modeled after certain elements of the Federal Employees Health Benefits Program; this would also be similar to a drastically expanded PC3 program. VA would provide health insurance benefits for Veterans to access purchased care.

Regardless of which approach is undertaken, certain considerations must be noted in this option's implementation. VA's physical infrastructure would have to be drastically reduced or even eliminated altogether. This would likely entail complex sales to private-sector health care organizations; for example, hospital buildings might be sold to hospital ownership entities, clinics sold to medical groups, and, in some cases, entire medical centers (that is, hospital and clinics) might be sold to integrated health care delivery systems. It could also entail sales to non-health care organizations and demolishing buildings that are unusable or otherwise unable to be sold. Similarly, health care equipment (for example, beds, X-ray machines) might be sold to other health care entities.

In addition, VA's workforce would change significantly, shifting from providers to administrative personnel who oversee the program. While some of the workforce might be redirected to the private sector (for example, a health care delivery organization purchasing VA resources in a given area might choose to hire VA staff), the loss of thousands of federal jobs would be a drastic and unattractive measure to many communities and individuals. Incorporating a systematic plan for job repatriation would protect VA's workforce and potentially increase political viability of this option. As an example, part of this policy option might require VA Centers of Excellence providing specialized services to be purchased by private-sector organizations without changes in space, equipment, or staffing, so as to retain expertise and capabilities in those areas that may be lacking in the private sector. However, this is highly dependent on the willingness of the private sector in a given area to absorb these resources.

VA's current medical education and research programs would also need to be significantly reduced or dismantled and transferred to the private sector. VA manages the largest medical education and health professional training program in the United States; approximately 81,000 health professionals are trained annually in VAMCs across the nation, and roughly 60 percent of all medical residents obtain a portion of their training at VA hospitals. VA is also a research leader, playing a critical function in understanding the needs of Veterans and developing innovative approaches to meet them through established programs in health services, biomedical, and clinical research. Both these functions would be significantly compromised under this option.

This option would require that the Veteran health benefit be defined similarly to Medicare or TRICARE. In addition, current eligibility rules for accessing VA care may need to be modified to implement this option to limit increases in outlays. Currently, many Veterans eligible for VA benefits do not enroll, and many enrollees have other sources of insurance coverage. If VA provided insurance coverage, Veterans currently using private insurance or Medicare might instead switch to VA coverage under this option to receive the same private-sector care, particularly if VA offered relatively favorable benefits and cost-sharing requirements.

### 6.5.1.2.1 Evaluation

**Impact on access.** This option would entail a drastic shift in VA health care, with a highly uncertain impact on access. The impact would depend on design and implementation of features, including insurance benefits, provider network adequacy, and beneficiary cost sharing. Broadly speaking, the impact on access would be defined in part by the private sector's ability to provide timely and accessible care. Some data suggest that private-sector wait times could be worse than VA wait times. For example, VA reports that, on average, Veterans seeking new patient appointments wait approximately eight days from their preferred date for primary care and seven days from their preferred date for specialty care. Meanwhile, prior studies of private-sector wait times reported average wait times of 19.5 days between an initial call and the appointment date for new primary care appointments (Merritt Hawkins, 2014) and 22–37 days for specialty appointments (Massachusetts Medical Society, 2013). In addition, our geographic analyses indicates that the majority of enrollees who live more than 40 miles from a VA facility live more than 40 miles from any provider in that specialty and are much less likely to have access to academic and teaching hospitals, or to specialized services such as oncology, cardiac surgery, and cardiac catheterization. This suggests that directing Veterans to the private sector may not necessarily improve timely access to care.

**Fiscal impact.** This option would likely generate substantial implementation costs associated with the transition from provider to purchaser. The long-run costs would depend on enrollment in VA health insurance, the generosity of coverage, and the prices of purchased care. Critical components would be defining the benefit and reconsidering Veteran eligibility for health care. Many Veterans do not use VA for health care, opting for other sources of insurance coverage for private-sector care instead. If the benefit were based on the current promise of a comprehensive benefit with limited out-of-pocket costs, many of these Veterans might find VA insurance more attractive than their current coverage, leading to increased federal outlays.

**Stakeholder acceptability.** This option has been previously suggested by some observers but has generated significant controversy. Although the success of TRICARE suggests the potential acceptability of an option to similarly restructure VHA as a purchaser of health care, the option calls into question the very nature of VA's mission to care for Veterans.

**Operational feasibility.** There are significant administrative challenges to implementing this option. Implementation would be a lengthy process with changes gradually phased in. Changes would also have to be clearly communicated to Veterans; experience with disseminating information regarding the Veterans Choice Program to Veterans suggests that this is likely to be a challenging task with successful implementation highly uncertain. Starting with pilot programs to test various elements of such a program would be critical to its successful implementation.

VA would also need to create and oversee processes for administrative and payer functions such as monitoring the quality of care provided in the private sector, measuring Veteran satisfaction with private-sector care and contractor services, measuring access to care, and handling claims appeals. VA might consider adapting or piggybacking onto existing approaches utilized by Medicare and some larger employers, or outsourcing this function. Regardless of the selected approach, this option would likely require implementation of new processes as well as additional staff training.

Finally, attention to dually eligible Veterans would be warranted, and coordination between programs such as Medicare and Medicaid required. For example, it might be that VA would serve as the secondary payer to Medicare, perhaps providing supplemental benefits or cost-sharing reductions for those dually eligible.

**Summary statement.** Redefining the role of VA as payer rather than provider would entail a radical shift in VA's mission and structure, with a highly uncertain impact on access. This option has been previously suggested by some observers but has generated significant controversy. If deemed feasible, there would be significant administrative challenges to implementing this option.

### 6.5.2 Policy Options to Improve Productivity of Existing Resources

Veterans currently face many barriers in accessing care from non-VA providers; minimizing these barriers could allow Veterans to better access private-sector providers. Below, we describe the single option that was consistently raised in our interviews: Consolidate existing purchased care programs.

#### 6.5.2.1 Consolidate Existing Purchased Care Programs

This option would consolidate salient features of VA's existing purchased care programs—the traditional program, the PC3 program, the Access Received Closer to Home (Project ARCH) pilot, and the newly created Veterans Choice Program—into a single system-wide program that replaces all other approaches to purchasing care in VA, including local facility contracts and individual provider authorizations. Assessment C reviews the possible approaches to consolidation and the implications for VA's authorities to purchase care. Accordingly, we do not describe the details of how this option would be implemented. We focus on the implications of the option for access to care.

Several general approaches could be followed. A simple approach might be to combine programmatic oversight of the programs under a single administrative umbrella. A mid-range approach might be to standardize key elements of existing programs (for example, reimbursement rates, medical record return and documentation rules). A more ambitious approach would be to create a single program that facilities would be mandated to use for all purchased care.

Our interviews indicated that considerable duplication and variation exist in VA processes for authorizing and purchasing care, which results in confusion among VA and non-VA providers regarding contractual requirements (for example, medical record return and documentation, provider credentialing), reimbursement rates, authorization processes, and patient eligibility. This can contribute to delays in care. Recent congressional testimony before the Senate Committee on Veterans Affairs indicates that many VA facilities continue to use the traditional program to purchase care directly from non-VA providers instead of using one of the contracting vehicles such as PC3 or the Veterans Choice Program, despite the money and time put into those programs (McIntyre, 2015). Moreover, many of these non-VA providers are also network providers under PC3 and the Veterans Choice Program, exacerbating confusion by non-VA providers about which program (and therefore which rules and rates) applies to a



Veteran's care. Non-VA provider confusion regarding how, what, and when they might be reimbursed as a result of multiple programs surfaced consistently in stakeholder interviews. Some non-VA providers may decline participation altogether because of the administrative burden and complexity of navigating the VA purchased care system. Assessment C explores these issues in more detail.

Consolidating existing purchased care programs could potentially mitigate these challenges. VA has already begun an effort to standardize its approach to purchasing care, largely by focusing on replacing local facility contracts (contracts that individual facilities set up with local providers) and individual provider authorizations with the PC3 or Veterans Choice Program (Robinson, 2014). In addition, Section 106 of the Veterans Choice Act consolidates and centralizes the back-end processes (for example, claims processing) for purchased care under VA's Central Business Office. Implementation of the proposed option would involve additional steps to advance this consolidation and standardization process.

### 6.5.2.1.1 Evaluation

**Impact on access.** No direct evidence exists to support an estimate of this option's impact on access. However, to the extent the option addresses barriers to the use of current purchased care programs, it could potentially increase the ease and timeliness with which Veterans can access care, enable VA to develop a larger network of non-VA providers, and create administrative efficiencies. Reducing confusion regarding VA's purchased care programs, particularly around reimbursement rates and contractual requirements such as credentialing or medical record documentation, might make it more attractive to non-VA providers who might previously have been reluctant to engage. It should be noted that increasing access to purchased care may not ultimately increase access to care overall, particularly if the availability of purchased care is constrained in the same regions where demand relative to supply in VA is imbalanced. In addition, to the extent that this option increases access either by streamlining processes and/or facilitating expansions to non-VA provider networks, it may engender new access constraints over the long term as more Veterans are encouraged to enroll.

Reducing confusion regarding VA's purchased care initiatives by creating a single program might improve VA provider knowledge of how to access purchased care and induce providers to refer patients to purchased care more often, although there is no direct evidence available to estimate this impact. Minimizing Veteran confusion regarding eligibility rules might also help Veterans to seek out purchased care. Interviewees reported that many Veterans are relatively unfamiliar with PC3 and even more confused about their eligibility for the Veterans Choice Act.

The impact of a single purchased care program on access is highly dependent on several factors, the most important of which is the ability of private-sector providers to provide additional care to Veterans. This is constrained by market forces, which affect the ability for VA to offer payment rates that are attractive enough to induce provider participation. Our interviews revealed that many VAMCs rely on local contracts because they reimburse at higher rates than PC3. The impact is also dependent on non-VA providers' willingness to engage in a contractual relationship.

**Fiscal impact.** This option may require additional investment to further support streamlining and consolidating current purchased care programs, but any administrative efficiency achieved could reduce costs over time.

**Stakeholder acceptability.** This option is not expected to face significant stakeholder opposition because it does not significantly change the structure or delivery of services. This option continues to provide a private-sector avenue for timely and accessible care, but maintains VA's role as a provider of health care services.

**Operational feasibility.** Although many of the structures and processes necessary for implementing this option are in place in VA, the operational feasibility of this option will depend on the organization's ability to streamline and consolidate its existing processes. This will entail identifying all processes related to purchased care, identifying opportunities and methods for consolidation, and then implementing those methods in a systematic and consistent manner. Currently, several offices within VA hold some responsibility for the different existing purchased care programs; this option would require coordination among offices and potentially downsizing through the consolidation process. There is likely to be some confusion on the part of Veterans and both VA and non-VA providers as processes are communicated and implemented, and a potentially extended ramp-up period is possible as provider networks are built and policies and procedures established.

**Summary statement.** This option could potentially increase the ease and timeliness with which Veterans can access purchased care, enable VA to develop a larger network of non-VA providers, and create administrative efficiencies but may require additional investment in the near term. Administrative efficiencies achieved could reduce costs over time, while the operational feasibility of this option will depend on the organization's ability to streamline and consolidate its existing processes.

### 6.5.3 Subsection Summary

**Policy options to modify the amount and/or type of resources.** The effect of increasing purchased care use by outsourcing certain services is highly uncertain and would depend on the volume of services provided by non-VA providers and the relative accessibility of non-VA and VA provision of those services as well as VA strategic decisions. This option might face opposition from important stakeholder groups, including Veterans and VA providers, as well as administrative barriers, including the need for new contracts or other partnership agreements. On the one hand, increased collaboration and reliance on academic medical centers and other private-sector health care organizations could enhance VA capacity to provide timely access to care to Veterans. On the other hand, these organizations could face the same capacity constraints in providing timely access to care as VA, particularly with increased demand from a new population with unique needs. Redefining the role of VA as payer rather than provider would entail a radical shift in VA's mission and structure with a highly uncertain impact on access. This option has been suggested previously but has generated significant controversy, and implementation would require significant administrative challenges to be addressed.

**Policy options to improve productivity of existing resources.** Consolidation of existing purchased care programs could potentially increase Veteran access to purchased care, enable

VA to develop a larger network of non-VA providers, and create administrative efficiencies. This option may require additional investment to support streamlining and consolidation of current purchased care programs, but any administrative efficiency achieved could reduce costs over time. Operational feasibility would depend on the organization's ability to streamline and consolidate its existing processes.

### 6.6 Comparison of Policy Options

In this subsection, we briefly summarize and compare the policy options and discuss tradeoffs between options.

Based on the projections presented in Subsection 6.1, unless VA demand projections are inaccurate or other changes occur, it will not likely get easier for VA to provide adequate access to care. In the status quo scenario, demand for VA health care services will increase more rapidly than VA capabilities to provide those services. However, policy options that would substantially increase the productivity of VA health care resources, increase the amount of those resources, or both would allow VA production of health care services to keep up with or even exceed demand. While this would not guarantee access to care, it would make accessible care more feasible.

None of the policy options we considered dominates the others on all criteria. Similarly, no option can be eliminated because it is inferior on all criteria. However, comparing the options through the policy lens of increasing access within the VA system, the three options with the highest estimated impact on access are formalizing full nursing practice authority, increasing the number of VA physicians, and expanding virtual access to care. None of these options is mutually exclusive; they could be combined in a number of different ways. Each option has different potential barriers that present tradeoffs. The primary barrier to formalizing full nursing practice authority is political (key stakeholder opposition); the barriers to hiring physicians are related to cost and administrative challenges associated with the hiring process; and the primary barrier to expanding virtual access to care is cost.

Policy options for increasing access outside VA's system have considerable uncertain impacts on access. One option, consolidating existing purchased care programs, has the most certain impact. The current system of overlapping programs was widely cited as problematic and lacks any clear benefits. This option is discussed in greater detail in Assessment C.

There is greater uncertainty around the potential impact of policy options aimed at increasing non-VA resources available for Veterans' health care. The impact and feasibility would be highly dependent on the scope of the change. Shifting certain types of services from VA to purchased care could potentially improve both access and quality of care, though this could increase challenges in care coordination. Shifting a greater share of services from VA to purchased care would require more fundamental changes to VA. Our analyses indicate that many Veterans without access to VA health care also face obstacles to accessing purchased care, including distance and cultural barriers. Thus, transforming VA from a provider to a purchaser of health care would not necessarily have a significant positive impact on access.

These policy options are summarized in Table 6-5.

Table 6-5. Summary Evaluation of Selected Policy Options

Option	Summary
<b>Improve productivity of existing resources internal to VA</b>	
Formalize full nursing practice authority throughout VA	Allowing full nursing practice authority would be a cost-effective approach to increasing the productivity of VA's existing physician workforce, thereby increasing access to care. However, stakeholder opposition may challenge adoption and uptake of this option, and full implementation may take considerable time and coordination.
Formalize task assignment in outpatient clinics	Formalizing task assignments in outpatient clinics could improve clinic workflow and provider efficiencies at low cost with a modest impact on access. This option will likely require many new administrative processes and changes to existing reporting and accountability structures. There may be some stakeholder resistance based on perceptions of new workload.
Standardize return visit intervals for common conditions	Standardizing return visit intervals could increase access over time by freeing up appointment slots as a result of either extending intervals or improved patient outcomes from shortened intervals. The feasibility and impact of this option is highly dependent on developing a solid evidence base to set optimal intervals, which will take time and research funding. There may be some challenges to stakeholder acceptability that could be mitigated by a transparent communication plan.
<b>Modify amount of resources internal to VA</b>	
Increase the number of physicians	Increasing the number of physicians in VA will require significant financial resources and the ability to overcome pervasive administrative barriers within the organization. The impact of this option on access is highly dependent on the availability of other, potentially costly resources such as space, equipment, and support staff.
Expand virtual access to care through use of telehealth	Expanding the use of telehealth could significantly improve access through workload and workforce redistribution across the system but will require significant up-front fiscal investment and attention to various administrative issues. This option is likely to have strong stakeholder support and may realize cost savings over time.

## Assessment B (Health Care Capabilities)

Option	Summary
<b>Improve productivity of existing resources external to VA</b>	
Consolidate existing purchased care programs	The impact of this option on access is highly dependent on private-sector capacity and the development of an adequate provider network. It may be difficult to implement this option as it requires VA to streamline many of its existing administrative processes; however, there may be some administrative efficiency to be achieved over time through the use of a single purchased care program. Stakeholder acceptability is expected to be high.
<b>Modify amount of resources external to VA</b>	
Expand purchased care use	The impact of expanding purchased care on access is uncertain and highly dependent on private-sector capacity. The cost is also uncertain and dependent on the balance between VA and non-VA provision of services. Implementation would be challenging, and the option may face some opposition from stakeholder groups reluctant to shift care away from VA.
Shift VA role from provider to purchaser of health care services	This is likely to be a controversial and costly option with a highly uncertain impact on access and significant administrative challenges.

Source: Authors' analysis of interview and literature review data.

## 6.7 Section Conclusion

We compared a number of policy options for increasing access for Veterans within the VA system, finding that, of the options considered, the three with highest estimated impact on access are formalizing full nursing practice authority, increasing the number of VA physicians, and expanding virtual access to care. None of these options is mutually exclusive; they could be combined in a number of different ways. However, each of the options has different potential barriers that present tradeoffs. The primary barrier to formalizing full nursing practice authority is political (key stakeholder opposition); the barriers to hiring physicians are related to cost and administrative and administrative challenges associated with the hiring process; and the primary barrier to expanding virtual access to care is cost.

The impact and feasibility of increasing non-VA resources available for Veterans' health care would be highly dependent on the scope of the change. Shifting a greater share of services from VA to purchased care would require more fundamental changes to VA. We did not find evidence of a current system-wide crisis in access to VA care that would indicate that such a change is necessary, but it is possible that such a reorientation would improve access. Coordination of care is challenging even within the VA system, but is more challenging when

coordination includes non-VA providers with separate information systems. Our assessment found that many Veterans without access to VA health care also face obstacles to accessing purchased care, including distance and cultural barriers. While non-VA providers may provide superior levels of access for certain Veterans and certain conditions, this will not be true for all Veterans and all conditions.

## 7 Conclusions and Recommendations

### 7.1 Summary of Assessment Findings

Access to timely and high-quality health care is a central part of our nation's commitment to Veterans, but concerns have been raised about how effectively this commitment is being fulfilled. In this report, we assessed VA's current and projected resources and capabilities, the level and nature of access to VA care, and barriers and facilitators to access. We then explored how selected policies could affect Veterans' access to high-quality care and considered how various policy options might enhance VA's resources and capabilities for treating Veterans in the future. Our assessment is based on a broad range of evidence from qualitative and quantitative analyses.

The assessment highlights many opportunities to improve VA capabilities to provide timely and accessible care. We identified a large number of barriers to effective use of VA resources. We also found widespread variation in performance across VA facilities. We did not find evidence of a system-wide crisis in current access to VA care. However, our projections indicate that, without changes, it will be increasingly difficult for VA to provide good access to care for our nation's Veterans.

We found that VA operates a unique health care system with broad and deep resources and capabilities. This system often, but not always, provides timely and accessible care to Veterans. For example, the vast majority of appointments were completed within 14 days of the provider-recommended or Veteran's preferred date for the appointment, as recorded by VA. At top-performing facilities, nearly all appointments meet VA's wait-time standards. At the same time, across the VA system, there were some facilities with much higher rates of long waits for appointments than others. Though small as a percentage of all appointments, there is still a large absolute number of Veterans' appointments that do not meet VA's own wait-time standard of within 30 days of the preferred date. Furthermore, even VA facilities performing well on the VA wait-time standard have opportunities for improvement: At facilities with the shortest wait times, many Veterans report that they do not always get an appointment as soon as needed. This suggests that even facilities that achieve VA's wait-time standards do not meet many Veterans' expectations for timely appointments.

VA's wait-time standards are based on the notion of a preferred date and do not reflect the absolute time between appointments. The preferred date has also been found to be subject to manipulation by VA employees in some well-publicized cases. Therefore, many have questioned whether the VA data and standard provide a valid reference for timeliness of appointments. While it was outside the scope of this assessment to validate these data, we examined whether alternative standards for timeliness could be applied. Alternative standards, such as those that assess availability rather than completion of appointments, may be less subject to gaming and more comparable to private-sector standards. It is unclear how many VA facilities or non-VA providers meet these alternative standards. We found limited data available with which to compare VA and non-VA waits for care, but VA wait times do not seem to be substantially worse than non-VA waits, based on the limited available evidence.

Geographic access is another challenge for VA. Veterans are highly dispersed geographically throughout the United States, and ensuring nearby access to needed services for this population is difficult. Overall, we found that many Veterans have geographic access to VA care by a general standard of less than 40 miles distance from any facility, not considering the services available at that facility; this is true regardless of whether distance is measured using a straight line or using driving distance. VA enrollees live an average of 52 minutes driving time from the nearest VAMC and 23 minutes driving time from the nearest VA medical facility of any type. On average and in most VISNs, these driving times are less than enrollees' reported willingness to travel and Medicare beneficiaries' average observed travel times. Geographic access is worse when using different types of access standards. Veterans who must rely on public transportation, for example, have much lower levels of access than other Veterans. Geographic access to specialized facilities and providers is also lower. Veterans often live far from a VA facility offering the services they need. This is also true of purchased care, however: Veterans who live far from VA medical facilities typically have access to non-VA community hospitals and primary care physicians, but are also likely to live farther than 40 miles from the nearest non-VA specialist and academic medical center.

When Veterans do access VA care, it is important that the care be of high quality. The assessment showed that VA health care quality was better on many measures and domains compared with non-VA comparators, while similar or worse on other measures. However, as with access to care, quality performance was uneven across facilities, with many opportunities for improvement.

Based on these observations and the data available to us, we conclude that VA does not currently face an overall crisis in access to care. However, there is variation in access and quality across the VA system, with poor performance for some VA facilities and Veteran subgroups. Examples of substantial variation in performance across VA facilities include:

- At the best-performing VA facilities,<sup>72</sup> the average wait time for new primary care patients was less than one day from the preferred date. At the worst-performing facility, the average wait time for these patients was more than 40 days from the preferred date.
- At the best-performing VA facilities, 61 percent of Veterans reported that they “always got urgent care appointments as soon as needed” in FY 2014. At the worst-performing VA facility, this rate was 21 percent.
- At the best-performing VA facilities, 68 percent of Veterans reported that their primary care providers always seem up to date about care received from specialists in FY 2014. At the worst-performing facility, this rate was 46 percent.
- At the best-performing VA facilities, 80 percent of patients with cardiovascular conditions had LDL-C levels below recommended thresholds in FY 2014. At the worst-performing facility, this rate was 50 percent.

---

<sup>72</sup> The “best-performing VA facilities” are defined as the top 10 percent of VA facilities.



This level of variation in performance across VA facilities suggests that significant opportunities exist to improve access to care in VA through systematic performance improvement. Some variation in performance across regions and VA facilities may be inevitable because of differences in patient characteristics. In addition, some localized strategies for improvement may not scale up well because of contextual factors. However, the assessment suggests that there are significant opportunities to improve performance by identifying and scaling up proven best practices within VA that could increase access to care for Veterans.

### 7.1.1 Barriers to Effective Use of Resources and Capabilities

VA faces many barriers to using resources in the most effective way to support Veterans; these barriers will need to be addressed to improve performance. These barriers present a formidable, but not insurmountable, problem regarding the level of VA resources and capabilities. Some of these barriers are specific to VA, while some affect the U.S. health care system more broadly. Below, we summarize the main barriers we found related to each type of resource examined. Other assessments also analyzed barriers in some of these areas in more detail.

**Fiscal resources.** We identified concerns about the data used for VA's budget planning and inflexibility in budgeting stemming from the congressional appropriation processes. The appropriation for VHA is divided into accounts for medical care, medical support and compliance, and some nonrecurring maintenance. The money is not fungible across categories because of appropriations law. The inability to shift money between the major allocation line items, such as maintenance and medical services, makes it difficult to adequately manage the budget over the course of the year. Congressional priorities can affect VA's appropriation, and the impact of increases in purchased care on the budget in future years is currently unknown. The process used to allocate funds to VISNs for medical services is equitable, though the process is based on data that are several years behind the current allocation year. This can leave facilities that are experiencing change in patient volume or case mix over- or underfunded in the current year, and creates incentives for facilities to treat more of certain types of patients in order to increase funding in future years.

**Workforce and human resources.** VA faces shortages of physicians in some geographic areas and of certain physician specialists more generally. VA's ability to hire and retain new physicians is influenced by a number of key factors, including relatively low salaries, a slow credentialing process, and infrastructure constraints. We identified several challenges associated with the VA workforce planning and assessment processes. These include a lack of guidance about what methods should be used for these processes, a lack of external productivity benchmarks, inaccurate or incomplete data inputs, and the inability of the productivity benchmarking data system to adequately account for certain types of providers and patient visits.

**Physical infrastructure.** VA is also constrained by its physical space. Interviewees reported that it was difficult to update the physical space in older buildings to accommodate new medical technology and equipment. They also noted that the need for additional space or more

effective use of existing space was often a key limiting factor in improving access to care for Veterans.

**Interorganizational relationships.** VA provides access to purchased care through several programs and various types of payment or contractual arrangements, but managing these overlapping programs has been a challenge. For example, as VA was attempting to address some of the administrative challenges associated with arranging, coordinating, and reimbursing purchased care through the implementation of the PC3 program, the addition of the Veterans Choice Program further complicated these challenges and resulted in confusion among Veterans, VA employees, and non-VA providers. VA and members of Congress have expressed a desire to more effectively utilize interorganizational relationships.

**Informational resources.** VA's role as an innovator and leader in health IT has been challenged by issues related to the management and planning of its IT systems. Among every IT capability we studied, we found clear barriers to further taking advantage of what IT can offer, including inadequate infrastructure, lack of facility leadership and provider buy-in, and administrative burden. Our findings also confirm the results of previous studies concerning strengths and weaknesses in VA's current electronic health record (VistA/CPRS) technology, which suffers from an aging architecture and 10 years of limited development. However, interviews across the spectrum of VA personnel—from management and IT thought-leaders to end-users—suggest strong support for renewed investment in a modern, home-grown product rather than transitioning to a commercial off-the-shelf alternative. The tradeoffs of homegrown versus commercial electronic health records software are discussed in Assessment H.

Addressing these barriers will require a mix of short- and long-term initiatives. Our projections indicate that, if no substantial changes are made, it could be more difficult in 2019 for VA to provide accessible and timely care for Veterans than it was in 2014. However, available policy options could likely ensure that there are sufficient resources and capabilities to provide access without a fundamental change in the objective and orientation of VA. Among the options we considered, which comprise a prominent but not exhaustive set of options, no single policy option for increasing resources and capabilities was clearly superior to the others on all the criteria we considered.

### 7.1.2 Moving Forward

VA has the potential to be a national leader in health care innovation that improves access, quality, and the value of care. In certain areas, such as health IT and quality improvement, VA has historically been a leader and innovator. However, in some cases, such as IT, that position has eroded over time. There is widespread innovation and experimentation in new models of health care delivery that are occurring in federal and private-sector programs. VA should be at the forefront of these efforts.

Options with a policy objective of increasing Veterans' access to care outside the VA system have considerable uncertainty related to their potential impact on overall access. Purchased care provided to Veterans through relations with non-VA entities already represents a substantial and growing resource for VA. Care is provided to VA enrollees by non-VA entities through several programs and various types of payment or contractual arrangements that VA

has negotiated with its partners. The assessment highlighted several important barriers to increasing access through these programs. First, as described above, the existence of multiple programs has led to confusion and administrative complexity. Second, the geographic access standards used to identify Veterans eligible for purchased care are not very sensitive to differences in access experienced by subgroups of Veterans. In particular, the standards do not consider the availability of specific types of services, or regional differences such as traffic patterns. Third, VA's effort to increase Veterans Choice Program utilization could be better targeted at areas with lower rates of geographic access to needed care; such an assessment would consider area population totals and urbanicity, as well as VA facility complexity and service offerings.

VA could more fundamentally change its approach to providing access to non-VA providers in order to increase access for Veterans. There is a wide range of possible approaches, from providing Veterans access to certain defined services from non-VA providers to changing VA's role to that of a payer like TRICARE or Medicare.

There are several important areas of uncertainty that make it difficult to assess the projected impact of such changes. First, it is unclear to what extent non-VA providers would provide a superior level of access to care for Veterans. Our assessment found that many Veterans without access to VA health care also face obstacles in accessing purchased care, including long travel distances in the same rural areas where VA care is less available, and cultural barriers, particularly for complex and specialized services. Second, increased use of non-VA providers would increase challenges related to VA care coordination. Coordination of care is challenging in any single system, but is more challenging when coordination includes providers working across distinct systems of care with separate information systems and cultures. Third, fundamental changes in VA's role would have an uncertain effect on enrollment and use of care by Veterans. Many Veterans eligible for VA care are not currently enrolled, and many current enrollees do not use VA for all of their care. If VA were to transform to the TRICARE or Medicare model, for example, it is possible that demand for care would increase substantially, creating new challenges for VA capabilities to provide timely access. Thus, transforming VA from a provider to a purchaser of health care would not necessarily have a significant positive impact on access.

## 7.2 Limitations of the Assessment

This assessment has several important limitations, a number of which stem from the fact that the assessment was conducted over a very short time frame. This limited the scope of what could be included and to some extent the depth of analysis, particularly in cases where the process for obtaining VA data was protracted relative to the project timeline.

The lack of direct input from Veterans is a key limitation of this assessment. Veteran input would have provided valuable information about how Veterans perceive VA resources and capabilities and the barriers they face in accessing VA care. We were unable to conduct

interviews or focus groups with Veterans because doing so would require U.S. Office of Management and Budget approval under the Paperwork Reduction Act.<sup>73</sup> The application and approval process can take many months and was not feasible within the assessment time frame. To address this limitation, we conducted several analyses of secondary data sources that included Veterans' perspectives. For example, we analyzed VA patient experience measures and Yelp reviews of VA facilities and conducted interviews with representatives of Veterans Service Organizations.

Another limitation is that the projections of future resources are based solely on provider and productivity data (that is, FTEs and RVUs). The projections do not directly include changes in other key resources, such as physical space, equipment, and IT. They do include these resources indirectly through the productivity measure, since increased productivity could come through improved use of these resources. A projection model that included all resources and the interactions between them (for example, system dynamics) would be useful, but was beyond the scope of this assessment.

Moreover, the projections analysis is static in that it does not account for changes in demand that might occur if supply, and thus access, were increased. For example, if VA increased the productivity of its resources and improved access, current users might increase their reliance on VA, and more Veterans might choose to use the VA system. The VA demand projections we rely on do not account for this demand response, and thus the comparisons between projected supply and demand may understate a future gap if VA takes actions to improve access.

To put VA measures in context and assess adequacy, it would be useful to compare VA with non-VA health care organizations on measures of resources and capabilities. This would provide an objective benchmark against which we could assess VA measures. Differences between VA and other health care organizations, in terms of the organization of the delivery system and the patient population, however, limit the value of such comparisons. Therefore, in most cases, we use qualitative data from interviews and literature reviews to assess the adequacy of VA's resources and capabilities. Only for selected analyses did we identify and include useful non-VA comparators.

Several of our data sources and methods used have limitations that could have biased our analyses. Data from interviews may not be widely generalizable because our interviewees may not have been representative of all possible respondents, and the results may have been subject to biases in interviews and interpretation of results. Many data analyses relied on VA data sources, and we were not able to assess the validity of the source data. Survey results may have been subject to nonresponse bias.

Despite these limitations, this assessment provides valuable information about VA resources and capabilities to provide timely, accessible care.

---

<sup>73</sup> In accordance with the Paperwork Reduction Act, an approval from OMB must be obtained prior to collecting federally sponsored data from 10 or more respondents within a 12-month period using standardized questions.

## 7.3 Recommendations

Based on the findings of Assessment B, we make several recommendations to improve access to care for Veterans.

**VA should use a systematic, continuous performance improvement process to improve access to care.** Many VA facilities achieve very high levels of performance on key access and quality measures. At the same time, there is a great deal of variation across the system, and some Veterans are not receiving timely access to care. A systematic effort is needed to identify unwarranted variation, identify and develop best practices to improve performance, and embed these practices into use across the VA system at other sites where they could be successful. However, attempts to standardize high-quality performance should also be sensitive to the need for some solutions designed to support local needs and contexts. Solutions should be designed to be responsive to Veterans' preferences, needs, and values.

**VA should consider alternative standards of timely access to care.** Although VA provides timely and accessible care to most Veterans, there are still many Veterans who do not get an appointment as soon as needed. Timeliness standards should be reexamined and should consider use of metrics that reflect the *availability* of appointments, rather than when they are completed. VA should examine the utility of existing alternative benchmarks such as same-day availability of the third next available appointment. Access standards for other dimensions, such as cultural access, should also be developed and used in performance monitoring and improvement. VA should develop methods to routinely compare timeliness of VA care with non-VA benchmarks and publish these comparisons to give Veterans a better understanding of facility performance. Currently, good non-VA benchmarks do not exist. The evidence base for appropriate visit intervals is also very underdeveloped. VA has an opportunity to be a leader in the U.S. health care system in developing evidence-based methods for measuring and improving the timeliness of care.

**VA and Congress should develop and implement more sensitive standards of geographic access to care.** Although most Veterans have geographic access to VA care by a general standard of less than 40 miles distance from any facility, geographic access is worse when using different types of access standards. VA should compare the "one-size-fits-all" approach of driving distance with alternative standards that are more sensitive to differences between Veteran subgroups, clinical populations, geographic regions, and individual facilities. This assessment highlighted the importance of time spent driving, mode of transportation, traffic, and availability of needed services as key considerations in assessing whether Veterans have geographic access to care.

**VA should focus efforts to increase Veterans Choice Program utilization in areas with the lowest rates of geographic access to VA facilities.** These areas can be identified in geographic assessments that consider locations of facilities relative to enrollee populations, along with estimates of access to more complex and specialized service offerings in VA facilities.

**VA should continue moving toward using a smaller number of quality metrics in quality measurement and improvement activities.** VA has historically been on the forefront of quality measurement and improvement in the United States. As a result, VA currently maintains an

extensive set of quality measures. Although use of these measures has led to improvements in care, the proliferation of measures creates burdens on staff and resources and can lead to an emphasis on the measures rather than improvement in areas of care that are more likely to improve outcomes for Veterans. VA has already moved toward reporting systems that rely on a smaller number of measures, such as Strategic Analytics for Improvement and Learning (SAIL)<sup>74</sup>, and should continue to advance in this direction.

**VA should take significant steps to improve access to VA care.** Our projections indicate that increases in resources and the productivity of resources will be necessary to meet increases in Veterans' demand for health care over the next five years. The options we considered that have the highest estimated potential impact are formalizing full nursing practice authority, increasing physician hiring, and increasing the use of virtual care. These are commonly proposed options for improving VA care. In addition, new models of health care delivery are emerging rapidly in the U.S. health care system that could improve access to care. VA should seek to be an early adopter of these new models and should build a strategy that enables and supports such innovation.

**VA should establish itself as a leader and innovator in health care redesign.** Our assessment found that VA has historically been on the leading edge in several important areas, such as development and use of health IT. It is also on the forefront of many other innovative delivery methods, such as team-based primary care. As a large integrated delivery system, VA has some favorable conditions in which to innovate compared with many other U.S. health care delivery systems. However, VA also faces certain constraints (hiring processes, salaries, budgeting, etc.) that private-sector entities do not. VA should endeavor to maximize its opportunities to innovate, and should also endeavor to learn from current leaders in areas where its leadership position has eroded, particularly in health IT, and seek to reestablish its leading position.

**VA should streamline its programs for providing access to purchased care and use them strategically to maximize access.** Currently available programs are overlapping and confusing to Veterans, VA employees, and non-VA providers. VA should clearly identify the objectives of purchased care access and streamline programs to meet those objectives.

**VA should systematically identify opportunities to improve access to high-quality care through use of purchased care.** Some types of care may be more effectively and efficiently delivered by non-VA providers. Identification of these types of care and the impact of shifting Veteran's care to non-VA providers requires an in-depth systematic analysis that was beyond the scope of this assessment.

## 7.4 Conclusions

These recommendations would help VA improve access to care for Veterans across the VA system and ensure that future demands for VA care can be met. Although this assessment did

---

<sup>74</sup> Although SAIL uses fewer measures to simplify reporting, they are composite measures which still incorporate numerous individual performance measures.

not find a system-wide crisis in access to VA care, it did identify a high degree of variability in performance across VA facilities, a number of barriers to effective use of VA resources and capabilities, and likely future challenges. These recommendations should be implemented and progress regularly evaluated to ensure continuous improvement in performance. Such improvement in performance will be needed to ensure that we meet our nation's commitment to care for Veterans.

This page intentionally left blank.



## Appendix A Methods

This appendix provides additional information on the methodologies used in Assessment B. It is intended to supplement Section 2, Methods Overview. The appendix contains material related to the following subsections in Section 2:

- A.1: Illustrative Clinical Populations
- A.2: Interviews
- A.3: VA Resources and Capabilities
- A.4: Access to VA Care
- A.5: Quality of VA Care
- A.6: Developing Policy Options
- A.7: Projecting Future VA Resources and Capabilities

### Appendix A.1 Illustrative Clinical Populations

As described in Section 2, we selected seven illustrative clinical populations that were used to provide a more detailed understanding of VA capabilities, resources, and accessibility in selected subpopulations of Veterans. We defined a clinical population as a group of individuals with a need for specific health care resources.

We selected clinical populations by applying “screening criteria” that were applied to each candidate population (importance, measurability) as well as “breadth criteria” that were applied to a subset of populations that met the screening criteria (type of care, acuity, care setting, workforce, population diversity). The breadth criteria were applied as a group to ensure that the portfolio was diverse on important characteristics. While each individual clinical population cannot meet all the breadth criteria, the group of clinical populations as a whole was required to cover the range of options specified by these criteria.

We applied the screening criteria using a two-step process. First, to identify “important” and “measurable” clinical populations, we selected the 37 conditions identified by the VA-DoD Reporting & Analysis Datamart Technical Advisory Group as a “High Interest Group.” We used prevalence data provided by the VA Healthcare Analysis and Information Group to select the 10 most prevalent medical high interest groups, the five most prevalent behavioral health high interest groups, and all conditions that were primarily attributable to military service. The result was the 20 populations listed in Table A-1. This list was subsequently revised, using the method described in Subsection 2.2.

## Assessment B (Health Care Capabilities)

**Table A-1. Breadth Criteria Characteristics of the 20 Candidate Clinical Populations Meeting the Screening Criteria**

	No. Unique Patients at VHA Facilities with Primary Diagnosis, FY 2014	Population Diversity	Acuity	Care Setting	Workforce
Medical					
Circulatory System	2,046,220	Older	Broad category which ranges from chronic (for example, asymptomatic coronary disease to acute (acute coronary syndromes)	Inpatient hospital with coronary care capability; cardiac catheterization laboratory; interventional radiology; emergency department; outpatient primary care and specialty clinics	Primary care, emergency medicine, cardiology, cardiothoracic surgery, vascular surgery; interventional radiology; rehabilitation
Pain	1,594,560	All ages	Chronic more common than acute	Primarily outpatient	Primary care, pain management
Vision Loss, Visual	1,177,707	Older	Chronic	Outpatient	Primary care, optometry
Diabetes	1,115,700	Middle age, older	Chronic; can be acutely exacerbated	Primarily outpatient. Occasionally inpatient hospital for uncontrolled diabetes	Primary care, endocrinology; ancillary services like nutrition counseling, podiatry, ophthalmology; team-based care
Hearing Loss	694,409	All ages	Chronic	Outpatient	Primary care, audiology
Hyperlipidemia	630,265	All ages	Chronic	Outpatient	Primary care

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

	No. Unique Patients at VHA Facilities with Primary Diagnosis, FY 2014	Population Diversity	Acuity	Care Setting	Workforce
Chronic Obstructive Pulmonary Disease	369,050	Older	Chronic with acute exacerbations	Outpatient primary care clinics, outpatient specialty clinics, inpatient hospital for acute exacerbations	Primary care, pulmonology, respiratory therapy
Arthritis & Arthropathy	367,151	Older	Chronic with acute exacerbations	Primarily outpatient. Rarely inpatient hospital	Primary care, rheumatology
Malignancy	203,096	All ages	Sub-acute; the course of the illness generally occurs over a discrete time interval (with exceptions). Timeliness of care is particularly important	Outpatient primary care, outpatient specialty care such as advanced imaging, chemotherapy and radiation therapy	Primary care for screening and diagnosis; Specialty care (for example, oncology, surgery, radiation treatment) is typically most important for treatment
Obesity	183,972	All ages	Chronic	Outpatient	Primary Care
TBI	59,394	Younger	Chronic	Outpatient specialty clinics, rehab	Primary Care, neurology, psychiatry, rehab med
Spinal Cord Injury	24,634	Younger	Chronic	Outpatient specialty clinics, rehab	Primary care, rehab med
Burns	5,595	Younger	Chronic in the context of the VA	Outpatient, surgical suites (if acute burn care not provided)	Primary care, plastic surgery

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

### Assessment B (Health Care Capabilities)

	No. Unique Patients at VHA Facilities with Primary Diagnosis, FY 2014	Population Diversity	Acuity	Care Setting	Workforce
Behavioral Health					
Depression	646,640	All ages	Chronic with acute exacerbations	Outpatient, inpatient for severe exacerbations	Psychiatry, primary care, psychology, social work
PTSD	582,565	All ages	Chronic, with acute exacerbations	Outpatient primary care and specialty mental health; some specialized PTSD residential programs	Psychiatry, primary care, psychology, social work, peer counselors
Anxiety	313,792	All ages	Chronic, acute	Outpatient primary care and specialty mental health;	Primary care, psychiatry, psychology
Substance Abuse	245,312	All ages	Chronic with acute exacerbations	Outpatient primary care, specialty mental health and specialty substance abuse clinics, emergency department, residential rehabilitation centers, outpatient rehabilitation centers; domiciliary	Primary care, emergency medicine, substance abuse specialists, psychiatry, psychology, social work, peer counselors
Other Mental Health	196,537	Unknown	Chronic, acute	Outpatient, inpatient for severe exacerbations	Primary care, psychiatry

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

	<b>No. Unique Patients at VHA Facilities with Primary Diagnosis, FY 2014</b>	<b>Population Diversity</b>	<b>Acuity</b>	<b>Care Setting</b>	<b>Workforce</b>
Adjustment Reaction	155,203	Unknown	Chronic, acute	Outpatient, primarily primary care	Primary care, psychiatry
Brain Injury Mental Disorder	2,745	Younger	Chronic	Outpatient	Primary care, psychiatry, neurology, rehab

Sources: VA Healthcare Analysis and Information Group provided a list of 37 “High Interest Group” conditions, along with associated prevalence data. Population Diversity, Acuity, Care Setting, and Workforce columns are based upon clinical expertise. For Population Diversity, “Older” is indicated when the condition is more common among Veterans age 50 or older; “Younger” is indicated when the condition is more common among Veterans age 40 or younger.

## Appendix A.2 Interviews

As part of our methodology for identifying personnel to interview (see Subsection 2.4), we drew a purposive sample of VAMCs. The sample of facilities was selected to include a variety of facilities that, while not technically representative of the universe of VAMCs, would provide variation on key characteristics. As explained in Section 2, we created six VAMC groups based on three characteristics: capacity, complexity, and metropolitan context.

We provide additional information about how we defined these characteristics here:

**Capacity:** Capacity refers to the size of the facility, which was measured in terms of the number of patients served. At the time that facilities needed to be selected (in order to begin interviews in a timely fashion), the best machine-readable measure of capacity to which we had access was the 2012 Hospital Quality Report Card (VA, undated). Data tables were publicly available. While this report contains several measures of capacity, we reviewed three: number of Acute Inpatient (Medical/Surgical) Facility Unique Patients, Number of Primary Care Outpatient Visits, and Number of Specialty Care Outpatient Visits. Dividing the VAMCs into groups using each of these metrics resulted in fairly similar results, so we ultimately used the inpatient numbers to assign each VAMC a size category of small (under 40,000 visits), medium (40,000 to 60,000 visits), and large (over 60,000 visits).

**Complexity:** Complexity refers to the level of the VAMC's ability to treat a large number of conditions (as opposed to offering a limited suite of services). Complexity was drawn from the Veterans Affairs Site Tracking System dataset (extract from September 30, 2014). Each VAMC is assigned a complexity score of 1 through 3 (1a, 1b, and 1c—High Complexity; 2—Medium Complexity, 3—Low Complexity). VAMCs were classified as complex (1) or less complex (2 and 3). The VHA's 2011 Facility Complexity Model classification is based on seven standardized criteria: volume and patient case mix, clinical services provided, patient risk calculated from VA patient diagnosis, total resident slots, an index of multiple residency programs at a single facility, total amount of research dollars, and the number of specialized clinical services.

**Metropolitan context:** Metropolitan context is the size of the urban area served. In Veterans Affairs Site Tracking data, all VAMCs are designated as Urban, Rural, or Highly Rural based on the Rural-Urban Commuting Areas system, which is based on the Census Bureau's urbanized areas and the percentage of the rural population commuting to urbanized clusters. We created three categories of VAMCs: Rural, Small/Medium Metro, and Large Metro. The "Rural" category included one VAMC that was classified as "Highly Rural" by the VA and 19 that were classified as "Rural." VAMCs designated as "Urban" were subdivided into two categories: Small/Medium Metro and Large Metro, by the size of the urbanized areas, on the grounds that the size of the metropolitan area may limit or enable access to non-VA care and therefore be an important dimension to consider in constructing the purposive sample of VAMCs. Size of the metropolitan area was obtained from the American Community Survey 2013 estimates of population for Core-Based Statistical Areas, which comprise micropolitan and metropolitan areas. These statistical areas are co-terminus with county boundaries, so it was possible to link the county location given for each facility in the Veterans Affairs Site Tracking System extract to its

associated Core-Based Statistical Area population. A threshold of 4 million in population was used to distinguish Small/Medium Metro areas from Large Metro areas.

## Appendix A.3 VA Resources and Capabilities

As part of our assessment of physical infrastructure capabilities and resources, we identified and defined clinical care services that are definitive for one or more of the seven illustrative clinical populations described in Section 2, Table 2-1. Table A-2 provides a full list of 27 such services and their definitions, grouped by clinical population.

**Table A-2. Definitions of Condition-Specific Services**

Clinical Population and Service #	Services	Definition
<b>Acute Coronary Syndromes</b>		
1	Emergency department	Hospital facilities for the provision of unscheduled, outpatient services to patients whose conditions require immediate care.
2	Coronary care unit	A hospital unit with specialty services to care for patients with heart attacks, unstable angina, cardiac dysrhythmia, and other cardiac conditions.
3	Telemetry (If CCU/ICU not available)	Electronic monitoring of heart rate and rhythm.
4	Non-invasive cardiology services	Evaluation of heart disease using external tests such as echocardiograms and stress tests.
5	Diagnostic cardiac catheterization	This technique assists in diagnosing complex heart conditions. cardiac angiography Involves the insertion of a tiny catheter into the artery in the groin then carefully threading the catheter up into the aorta where the coronary arteries originate. Once the catheter is in place, a dye is injected which allows the cardiologist to see the size, shape, and distribution of the coronary arteries. These images are used to diagnose heart disease and to determine, among other things, whether or not surgery is indicated.

## Assessment B (Health Care Capabilities)

Clinical Population and Service #	Services	Definition
6	Interventional Cardiology	Nonsurgical procedure that utilizes the same basic principles as diagnostic catheterization and then uses advanced techniques to improve the heart's function. It can be a less-invasive alternative to heart surgery.
7	Cardiac Surgery	Includes minimally invasive procedures that include surgery done with only a small incision or no incision at all, such as through a laparoscope or an endoscope, as well as more invasive major surgical procedures that include open chest and open heart surgery.
<b>Colon Cancer</b>		
8*	Primary Care Clinic	A unit or clinic within the hospital that provides primary care services (for example, general pediatric care, general internal medicine, family practice, gynecology) through hospital-salaried medical and/or nursing staff, focusing on evaluating and diagnosing medical problems and providing medical treatment on an outpatient basis.
9	Colonoscopy	An examination of the interior of the colon using a long, flexible, lighted tube with a small built-in camera.
10	Computerized Tomography Scan	Computed tomographic scanner for head or whole body scans.
11	Surgical Services	Inpatient and outpatient services for patients requiring surgery.
12	Oncology Services	Inpatient and outpatient services for patients with cancer, including comprehensive care, support and guidance In addition to patient education and prevention, chemotherapy, counseling and other treatment methods.

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.



## Assessment B (Health Care Capabilities)

Clinical Population and Service #	Services	Definition
<b>TBI</b>		
13	Polytrauma Support Clinic Team	An interdisciplinary team of health care providers who provide and coordinate rehabilitation services for patients with traumatically induced structural injury and/or physiological disruption of brain function as a result of an external force. Polytrauma Support Clinical Teams also conduct comprehensive evaluations of patients with positive TBI screens, and develop and implement rehabilitation and community reintegration plans.
14	Polytrauma Network Site	Sites that provides inpatient and outpatient rehabilitation care and coordinate polytrauma and TBI services throughout the VISN, generally with less comprehensive services than Polytrauma Rehabilitation Centers. (VA-specific term)
15	Polytrauma Rehabilitation Center (Program)	Regional referral centers for the comprehensive acute rehabilitation for Veterans with complex and severe polytrauma. Polytrauma Rehabilitation Centers maintain a full staff of dedicated rehabilitation professionals and consultants from other medical specialties to address the complex medical and psychosocial needs of patients with polytrauma. The Polytrauma Rehabilitation Centers serve as a resource for educational programs and best practice models for other facilities. (VA-specific term)
16	TBI Specialty Care	Specialty services designed for evaluation and treatment for patients with TBI.
<b>Type 2 Diabetes Mellitus</b>		
8*	Primary care clinic	(defined above)
17	Diabetes specialty or endocrinology clinic	Clinic that provides specialty care for patients with diabetes, including diagnosis, testing of glucose levels, and education about self-care and self-monitoring.
18	Podiatry clinic	Clinic that provides specialty care to diagnose and treat diseases affecting the feet and ankles.

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Clinical Population and Service #	Services	Definition
19	Ophthalmology clinic	Physician-staffed clinic that provides specialty care to diagnose and treat diseases of the eye.
<b>PTSD</b>		
20	Domiciliary Residential Rehabilitative Treatment Program	A DR RTP provides a residential level of care for Veteran populations including medical, psychiatric, SUD, PTSD, and homelessness. DR RTPs provide a 24-hours-per-day, 7 days-per-week (24/7) structured and supportive residential environment as a part of the rehabilitative treatment regime. DR RTPs are larger residential programs with multiple units serving various patient populations. (VA-specific term)
21**	Mental Health Services	A broad variety of health care services to diagnose and treat mental illness.
22	PTSD psychotherapy	Psychotherapy (talk therapy) services specially designed to alleviate symptoms for patients with PTSD, including behavioral techniques.
<b>SUD</b>		
23	Residential SUD treatment	Diagnosis and therapeutic services to patients with alcoholism or other drug dependencies as part of inpatient/residential treatment for patients whose course of treatment involves more intensive care than provided in an outpatient setting or where patient requires supervised withdrawal.
24	Methadone	Outpatient clinic that dispenses the drug methadone to patients with drug addiction to avoid symptoms of narcotic withdrawal.
25	Outpatient specialty SUD care	Diagnosis and therapeutic services to patients with alcoholism or other drug dependencies.
26	Inpatient detoxification	Inpatient unit to manage the narcotic withdrawal process for patients with drug withdrawal symptoms.
21**	Mental health services	(defined above)

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Clinical Population and Service #	Services	Definition
Conditions Requiring Gynecological Surgery		
27	Gynecological surgery services	Facility that provides care to patients requiring surgery on either an inpatient or outpatient basis.

SOURCES: Definitions 1, 5-10, 12, 23, 25, and 26 adapted from the American Hospital Association Annual Survey Reporting Instructions, 2008. Definitions 13-15 adapted from the VHA Handbook 1172.01, March 20, 2013. Definition 20 adapted from the VHA Handbook 1162.02, December 22, 2010. Definitions 2-4, 16-19, 21-22, 24, 26 provided by RAND staff.

Notes: \*Service 8, primary care, appears twice and retains the same number in this table.

\*\*Service 21, mental health services, appears twice and retains the same number in this table

## Appendix A.4 Access to VA Care

This subsection provides additional information on the methods used for two components of our assessment of access to VA care:

Measures of access (Subsection A.4.1)

Systematic literature review (Subsection A.4.2).

### Appendix A.4.1 Measures of Access

We characterized access to VA care and, where possible, compared access in the VA versus non-VA settings, by analyzing performance measure data from VA and non-VA data sources. Table A-3 provides a list of access measures used in this assessment, organized by the five dimensions of access.

**Table A-3. VA Access Measures and Questions By Domain (Timeliness, Geographical, Financial, Digital, and Cultural)**

Domain of Access	Access Measure or Survey Question	VA Data Source(s)	Non-VA Data Source(s)
Timeliness	<ul style="list-style-type: none"> <li>▪ Percentage of primary care appointments completed in less than or equal to 30 days from preferred date for: <ul style="list-style-type: none"> <li>▪ New patients</li> <li>▪ Established patients</li> </ul> </li> <li>▪ Percentage of specialty care appointments completed in less than or equal to 30 days from preferred date for: <ul style="list-style-type: none"> <li>▪ New patients</li> <li>▪ Established patients</li> </ul> </li> <li>▪ Percentage of mental health appointments completed in less than or equal to 30 days from preferred date for: <ul style="list-style-type: none"> <li>▪ New patients</li> <li>▪ Established patients</li> </ul> </li> </ul>	VHA Support Service Center (VSSC)	Not available for a representative sample of health care providers or plans

## Assessment B (Health Care Capabilities)

Timeliness	<ul style="list-style-type: none"> <li>▪ Outpatient access composite case-mix adjusted (%)</li> <li>▪ Get an urgent care appointment as soon as needed case-mix adjusted (%)</li> <li>▪ Get a routine care appointment as soon as needed case-mix adjusted (%)</li> <li>▪ Got answer to phone question during regular office hours on same day</li> <li>▪ Got answer to phone question after hours as soon as needed</li> <li>▪ Saw provider within 15 minutes of appointment time</li> <li>▪ Got needed care during evenings, weekends, or holidays</li> </ul>	VA Survey of Healthcare Experiences of Patients (SHEP): Patient-Centered Medical Home (PCMH) survey	AHRQ CAHPS Database <sup>75</sup>
Timeliness	<ul style="list-style-type: none"> <li>▪ Veterans like me can get in and out of an appointment at VA in a reasonable time</li> <li>▪ When Veterans like me go to VA for an appointment, they do not wait a long time to see the doctor</li> </ul>	VA Survey of Enrollees	Not available
Geographical	<ul style="list-style-type: none"> <li>▪ It is easy to get to my local VA facility</li> <li>▪ There is a VA provider in my area that offers all of the health care services that Veterans like me need</li> <li>▪ It is easy for Veterans like me to get around in the VA health care facility</li> </ul>	VA Survey of Enrollees	Not available

<sup>75</sup> National scores are available for the CAHPS Health Plan Survey and Medicare CAHPS surveys; however, the measures on these surveys are not the same as those on the SHEP PCMH.

## Assessment B (Health Care Capabilities)

Financial	<ul style="list-style-type: none"> <li>▪ If the cost of health care to me increases, I will use VA more</li> <li>▪ Veterans who can afford to use other sources of health care should leave the VA to those who really need it</li> <li>▪ VA offers Veterans like me the best value for our health care dollar</li> <li>▪ VA is the most cost-effective health care provider for Veterans like me</li> <li>▪ My use of VA will decrease if my financial resources improve</li> </ul>	VA Survey of Enrollees	Not available
Digital	<ul style="list-style-type: none"> <li>▪ Access to the Internet</li> </ul>	VA Survey of Enrollees	Not available
Cultural	<ul style="list-style-type: none"> <li>▪ Veterans like me like going to VA because you can talk to other Veterans</li> <li>▪ VA health care providers treat their patients with respect</li> </ul>	VA Survey of Enrollees	Not available

To identify measures of access for analysis, we conducted an environmental scan of access measures in VA performance measure reporting systems and publications, including the Strategic Analytics for Improvement and Learning (SAIL) (VA, 2014h), VA Hospital Compare ASPIRE (VA, 2014d), Linking Knowledge & Systems (LinKS) (VA, 2014c), and the Facility Quality and Safety Report (VA, 2013d).

Fifteen access measures or survey questions relate to the timeliness domain of access (Table A-3), including six related to appointment completions (wait-time measures), one composite measure, and six individual questions regarding access to care from an annual survey of Veterans who have used VA outpatient care (SHEP PCMH), and two items from an annual survey of Veterans who are enrolled in the VA health care system (VHA Survey of Veteran Enrollees' Health and Reliance upon VA, known as the Survey of Enrollees). We also analyzed measures related to the digital (one question), financial (five questions), geographical (three questions), and cultural aspects of access to VA care (two questions) from the Survey of Enrollees.

### Appendix A.4.2 Methods for Systematic Literature Review on Access to Care for Veterans

To summarize the peer-reviewed literature, we conducted a systematic review on access to VHA care for Veterans. Figure A-1 illustrates our review process.

**Search Strategy.** We built our search terms based on three major areas of interest that include (1) articles that focus on Veterans and VA health care facilities, (2) search terms around access

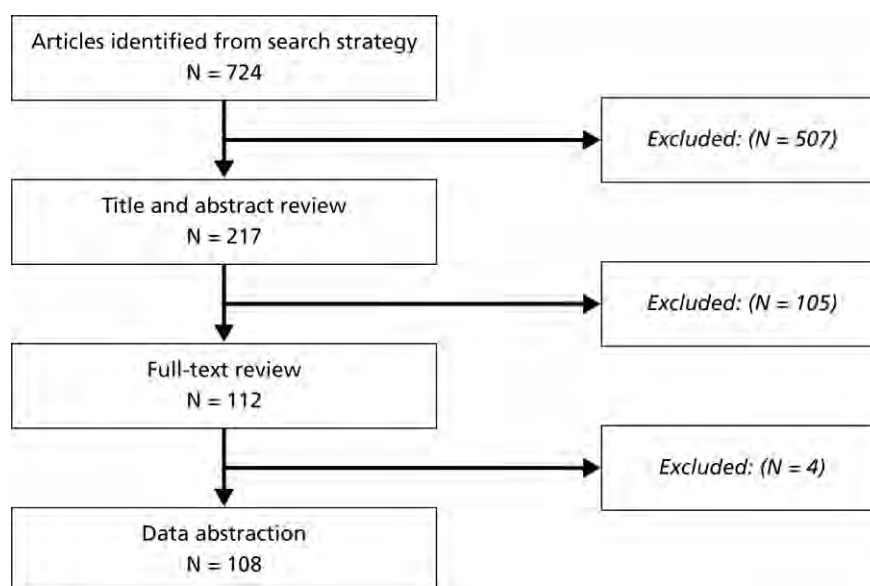
(defined as the availability of services), and (3) search terms around utilization (defined as the use of services). The search identified 724 articles of potential interest. The start date for the PubMed search was January 1, 2005, and the end date was April 10, 2015. A Stage 1 form was developed in DistillerSR with inclusion and exclusion criteria, and two researchers screened each title and abstract produced by the search. An article was selected for full-text screening when both researchers agreed it should be included. When disagreement about the initial assessment (inclusion or not) occurred, the specific articles were discussed with at least one other senior member of the review team. A total of 217 articles were carried through to the following stage.

**Study Selection.** Full-text articles selected for screening were reviewed by two trained researchers using a Stage 2 form in DistillerSR. To be included in the review, the article was required to evaluate access to care and/or the relationship between access to care and the utilization of services at VA facilities. Additionally, the Stage 2 screening form collected basic information about the articles to confirm that it should be carried forward to the final stage of review: outcome(s) related to access and/or access and utilization; type of access based on the outcomes (check all that apply). A total of 112 articles were carried through to the following stage.

**Data Abstraction.** Data were abstracted by one reviewer using a Stage 3 form in DistillerSR. Once the forms were completed, a senior member of the review team reviewed all the data. The following data were abstracted from all studies: author names, publication year, type of data, type of study design, sample size and unit of measurement, study health care setting, location, insurance status of study participants, outcome related to access and/or access and utilization (up to five could be reported), results related to access and/or access and utilization (up to five could be reported). A total of 108 articles were reviewed at this final stage.

**Data Synthesis.** We classified articles according to the dimensions of access outlined in Section 1. All articles that had been classified as “other” also overlapped with a specific domain of access (geographic, timely, financial, digital, and cultural) and results were reported in those respective dimensions. Within each dimension, studies were sufficiently heterogeneous to preclude meta-analysis. Consequently, our syntheses are narrative.

**Figure A-1. Literature Flow for Access Review**



MS4675B-A.1

## Appendix A.5 Quality of VA Care

This subsection provides additional information on the methods used for three components of our assessment of the quality of VA care:

- Measures of quality (Subsection A.5.1)
- Comparing quality in VA and non-VA inpatient settings (Subsection A.5.2)
- Systematic literature review (Subsection A.5.3).

### Appendix A.5.1 Analysis of VA Performance Measures

We used performance measures tracked by VA and evidence from peer-reviewed literature to measure quality of care in the VA, compare across VA facilities, compare across subgroups of Veterans, and compare with non-VA benchmarks. We selected a subset of performance measures for analysis from the more than 500 measures of quality available for use in the VA system. We analyzed measures for this report for which there were data available for VA patients; data for non-VA comparison groups was also analyzed when available. We prioritized quality measures that reflect national standards and are reported by national performance measurement programs, as follows:

The HEDIS measures, which were developed by the National Committee for Quality Assurance (National Committee for Quality Assurance, 2014). HEDIS measures included in this report relate to screening, prevention, and wellness, as well as management of chronic medical conditions, such as diabetes, hypertension, cardiovascular disease, and depression. HEDIS outpatient quality measures of effectiveness reported by VA and the National Committee for Quality Assurance are shown in Table A-4.



**Table A-4. HEDIS Outpatient Quality Measures of Effectiveness Reported by VA and the National Committee for Quality Assurance**

Measure Title*
Screening, Prevention, and Wellness
Tobacco Use: Advising Smokers and Tobacco Users to Quit
Breast Cancer Screening (50-74)
Colorectal Cancer Screening (50-75)
Chronic Condition Management
Persistence of Beta-Blocker Treatment After a Heart Attack
Comprehensive Diabetes Care
Blood Pressure Control (diagnosis of DM and hypertension, 18-85 years, and <140/90 mm Hg)
Eye Exams
HbA1c Screening
Poor Glycemic Control (HbA1c >9%)—Lower rates signify better performance
LDL-C Screening
LDL-C Control (<100 mg/dL)
Medical Attention for Nephropathy
Hypertension
Controlling High Blood Pressure (Diagnosis of hypertension, 18-85 years and <140/90)
Cholesterol Management for Patients With Cardiovascular Conditions
LDL-C Screening
LDL-C Control (<100 mg/dL)
Antidepressant Medication Management
Acute Phase
Continuation Phase
*VA facility-level data for HEDIS outpatient quality measures were obtained from the VA Office of Performance Measurement. National data for HEDIS outpatient quality measures for non-VA patients in health plans (commercial HMO, Medicare HMO, and Medicaid HMO) were obtained from the following report: National Committee for Quality Assurance. 2014. <i>The State of Health Care Quality 2014</i> . Available as of March 20, 2015 at <a href="http://www.ncqa.org">www.ncqa.org</a> .

The patient experience measures for health care received in the outpatient and inpatient settings adapted from the CAHPS (AHRQ, 2015) and HCAHPS (CMS, 2015) measure sets, respectively. For patients receiving care in non-VA hospitals, we used HCAHPS data that are reported on the CMS Hospital Compare website (CMS, 2015). Patient experience measures reported by VA are shown in Table A-5.

**Table A-5. Patient Experience Measures for Outpatient and Inpatient Settings Reported by VA and Non-VA Facilities**

Measure Title
<b>Outpatient Setting*</b>
Communication (How Well Providers Communicate with Patients)
Office Staff (Helpful, Courteous, and Respectful Office Staff)
Comprehensiveness (Providers Pay Attention to Your Mental or Emotional Health)
Self-Management Support (Providers Support You in Taking Care of Your Own Health)
Providers Discuss Medication Decisions
Patients' Rating of the Provider
Follow-up on Test Results
Provider was informed and up-to-date on care received from specialist
Talked about prescription medicines at each visit
Provider's office gave information on what to do if care needed on evenings, weekends, or holidays
Got reminders from provider's office between visits
<b>Inpatient Setting**</b>
Communication with Nurses
Communication with Doctors
Communication about Medicine
Responsiveness of Hospital Staff
Discharge Information
Pain Management
Care Transition
Cleanliness of the Hospital Environment
Quietness of the Hospital Environment
Overall Rating of Hospital

\*VA facility-level data for outpatient patient experience measures (Survey of Healthcare Experiences of Patients) were obtained from the VA Office of Performance Measurement.

\*\*VA facility-level data for inpatient patient experience measures (Survey of Healthcare Experiences of Patients) were obtained from the VA Office of Performance Measurement. Non-VA facility-level data for inpatient patient experience measures were obtained from the CMS Hospital Compare website.

The ORYX measures (also known as the National Hospital Quality Measures) developed by the Joint Commission for hospital quality improvement and used in its hospital accreditation

## Assessment B (Health Care Capabilities)

process (Joint Commission, 2015). We used data for VA and non-VA hospitals that are reported on the CMS Hospital Compare website (CMS, 2015). The ORYX measures included in this report relate to acute myocardial infarction, heart failure, pneumonia, and surgical care. Inpatient hospital quality measures reported by VA and non-VA hospitals are shown in Table A-6.

**Table A-6. Inpatient Hospital Quality Measures Reported by VA and Non-VA Hospitals**

Measure Title
<b>Acute Myocardial Infarction*</b>
Timing of receipt of primary percutaneous coronary intervention (PCI)
Aspirin prescribed at discharge
Statin prescribed at discharge
<b>Heart Failure*</b>
Discharge instructions
Evaluation of left ventricular systolic function
ACEI or ARB for left ventricular systolic dysfunction
<b>Pneumonia*</b>
Initial antibiotic for community-acquired pneumonia (CAP) in immunocompetent patient
<b>Surgical Care*</b>
Prophylactic antibiotic received within one hour prior to surgical incision
Prophylactic antibiotics discontinued within 24 hours after surgery end time
Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery
Surgery patients on beta-blocker therapy prior to arrival who received a beta-blocker during the perioperative period
Prophylactic antibiotic selection for surgical patients
Cardiac surgery patients with controlled 6 a.m. postoperative blood glucose
Urinary catheter removed on postoperative day 1 (POD 1) or postoperative day 2 (POD 2) with day of surgery being day zero
Surgery patients with perioperative temperature management
<b>Patient Safety**</b>
Complication/patient safety for selected indicators (composite) (observed: expected)
Death rate (per 1,000) among surgical inpatients with serious treatable complications
Iatrogenic pneumothorax (per 1,000)
Postoperative pulmonary embolism or deep vein thrombosis rate (per 1,000)
Postoperative wound dehiscence (per 1,000)

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Measure Title
Accidental puncture or laceration (per 1,000)
Outcome
Readmission*
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized readmission rate
Heart failure (HF) 30-day all-cause risk-standardized readmission rate
Pneumonia (PN) 30-day all-cause risk-standardized readmission rate
Mortality*
Acute myocardial infarction (AMI) 30-day all-cause risk-standardized mortality rate
Heart failure (HF) 30-day all-cause risk-standardized mortality rate
Pneumonia (PN) 30-day all-cause risk-standardized mortality rate

\*VA and non-VA facility-level data for these inpatient hospital measures were obtained from the CMS Hospital Compare website.

\*\*VA facility-level data for the patient safety indicator measures were obtained from the VA Inpatient Evaluation Center (IPEC). Non-VA facility-level data for the patient safety indicator measures were obtained from the CMS Hospital Compare website.

The Patient Safety Indicators (PSIs) developed by the AHRQ to provide information about adverse events and complications of care that may occur in the hospital (AHRQ, 2015). The PSIs in this report include two composite measures on overall inpatient safety and surgical safety, and four specific complications (Table A-6). We used data for VA and non-VA hospitals that are reported on the CMS Hospital Compare website (CMS, 2015).

The 30-day all-cause risk-standardized mortality and readmission measures developed by the CMS in conjunction with the Hospital Quality Alliance (CMS, 2014). We used data for VA and non-VA hospitals that are reported on the CMS Hospital Compare website (CMS, 2015). The mortality and readmission measures in this report include those for acute myocardial infarction, heart failure, and pneumonia (Table A-6).

The number of VA and non-VA hospitals that report data to CMS Hospital Compare varies across measures for several reasons. Different numbers of hospitals meet the CMS Hospital Compare criteria for reporting the various measures. The criteria include: the number of cases/patients must meet the required minimum number for public reporting (for example, 25 cases for the AMI measures); and the number of cases/patients must be large enough to reliably tell how well a hospital is performing and protect personal health information. Other reasons include the hospital did not have data to report for a measure, or a hospital did not have any patients meet the inclusion criteria for a measure.

### Appendix A.5.2 Comparing Quality in VA and Non-VA Inpatient Settings

In this subsection, we describe our method for comparing quality in VA and non-VA settings and, in particular, for propensity score matching. For inpatient quality measures, we compared

VA performance rates based on data provided by VA with data for non-VA hospitals on CMS Hospital Compare. To ensure optimum comparability between VA and non-VA facilities in our analysis, we identified a subset of non-VA facilities with similar characteristics. For this, we used a file of American Hospital Association data (American Hospital Association, 2014), which include facility-level characteristics for 135 VA facilities<sup>76</sup> and 6,332 non-VA facilities. We used the American Hospital Association data for propensity score matching based on the predicted likelihood that a non-VA facility could be a VA facility given certain characteristics (covariates). For matching, we selected four facility characteristics most likely to differ between VA and non-VA hospitals, and shown to be predictive of performance on Hospital Compare measures. The facility-level characteristics used for matching were:

- Bed size (<100 beds, 100–199 beds, and 200+ beds)
- U.S. Census division (East North Central, East South Central, Mid-Atlantic, Mountain, New England, Other, Pacific, South Atlantic, West North Central, and West South Central)
- Location (urban, rural)<sup>77</sup>
- Teaching status (teaching facility, non-teaching facility).<sup>78</sup>

We performed a t-test comparing all VA facilities and all non-VA facilities on the four baseline characteristics before building the propensity score model. There were significant differences between the VA and non-VA facilities for almost every characteristic. Therefore, the goal was to minimize these differences using our propensity score matching method. Next, we ran a logistic regression model to compute a propensity score for each facility. In our case, the propensity score is the predicted probability of the facility being a VA facility. We matched non-VA facilities to VA facilities based on these probabilities. We chose to match three non-VA facilities to each VA facility with a maximum allowable absolute difference between propensity scores of 0.0009. Non-VA facility matches were identified for all VA facilities. We ran t-tests again comparing the baseline characteristics of VA facilities and the matched set of non-VA facilities. There were no significant differences between the VA and the matched non-VA facilities for any characteristic in the model, indicating that the two sets of facilities are well-matched. When we estimated the measure results for the VA and non-VA comparison groups, if a VA hospital had a missing value

---

<sup>76</sup> Seven of 135 facilities flagged as “VA” in the American Hospital Association file could not be matched to the CMS Hospital Compare file, and therefore, were excluded from the propensity score matching. Of the seven excluded VA facilities, three facilities had measure data for Fiscal Year 2014 Q4 CMS Hospital Compare, and four facilities had Patient Safety Indicator and SHEP data from the VA’s datasets. Based on a comparison of the measure performance between the included and excluded hospitals, we concluded there were no meaningful differences between the two groups.

<sup>77</sup> Facilities are categorized as urban or rural based on the AHA definition: “A rural hospital is located outside a Metropolitan Statistical Area (MSA), as designated by the U.S. Office of Management and Budget (OMB), effective June 6, 2003. Urban hospitals are inside Metropolitan Statistical Areas.”

<sup>78</sup> Teaching facilities are defined to include all major and minor teaching hospitals, with a major teaching hospital being those with a Council of Teaching Hospitals (COTH) designation and a minor teaching hospital being those with another teaching hospital designation. Facilities without a teaching hospital designation were classified as non-teaching facilities.

for a measure, we excluded the non-VA hospitals matched to that hospital from the analysis of that measure. In addition, if one of the matched non-VA hospitals had a missing value for a measure, the remaining two hospitals were “up-weighted” by a factor of 3/2 or 1.5, and if two of the matched non-VA hospitals had a missing value for a measure, the remaining hospital was “up-weighted” by a factor of 3. Results are presented for comparisons of VA facilities and non-VA hospitals overall.

### **Appendix A.5.3 Methods for Systematic Literature Review Comparing Quality of Care for Veterans in VA and Non-VA Settings**

We conducted a systematic review of evidence on the quality of care provided by the VA compared with non-VA health care facilities and systems based on studies published in the peer-reviewed literature.

**Search Strategy.** We defined quality of care broadly using the Institute of Medicine’s definition, which is “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (IOM, 2001). The Institute of Medicine further proposed six characteristics of high-quality care: safe, timely, equitable, effective, efficient, and patient-centered. Timeliness as it relates solely to access is addressed by a separate literature review.

Given the existence of a recent systematic review on the quality of health care delivered in VA versus non-VA settings performed on this topic by RAND investigators, we chose to explicitly build upon this work (Asch et al., 2010). We built our search strategy using terms from this review.

The start date for the search was January 1, 2005, and the end date was January 1, 2015. We chose a cut-off of 10 years to ensure that we captured the most recent literature. Because of the focus on U.S. health care, we searched Medline only. Titles and abstracts identified by our literature search were then screened by two researchers trained in the critical analysis of literature. Articles that both agreed should be included were then selected for full-text screening. When differences in the initial assessment (inclusion versus not) occurred, the specific articles were then discussed with the senior member of the review team.

**Study Selection.** Full-text articles selected for screening were reviewed using a two-page screening form. Each article was again reviewed by two trained researchers. To be included in our report, the article had to present a comparison of quality of health care in VA and U.S. non-VA settings. Full inclusion and exclusion criteria were developed and applied consistently.

The screening form also collected basic information about the articles: whether the data for the comparison were sufficiently contemporaneous (within one to two years of each other); how VA and non-VA data were assembled; from what geographical area(s) VA and non-VA data were collected and analyzed; what conditions were covered in the quality assessment; what features of quality were measured (structure, process, and/or outcomes); which dimensions of quality were covered; and how similar the specifications were for quality assessments comparing VA and non-VA samples. Articles that had been previously included in the systematic review by

Asch et al. were reviewed at the full-screening stage only to identify which dimensions of quality they covered as this had not been included in the original review.

**Data Abstraction.** Data were independently abstracted by two reviewers using a one-page abstraction form. Once the forms were completed, differences in the data were reconciled by the two reviewers, and the evidence grade was reviewed by the senior member of the review team. The following data were abstracted from included studies: sample size for both VA and non-VA sources, years of data collection covered for both VA and non-VA sources, control variables, primary outcomes, and secondary or associated findings. Articles abstracted by Asch et al. in the previous review from 2005 to 2009 were not abstracted again, but are included as part of our results to present a complete picture from 2005 to 2015.

**Assessment of Study Quality.** Each article was given an overall assessment, which was based on the following criteria: time frames, samples (both VA and non-VA), quality measurements, outcomes, importance of measures, and statistical methods. Each of these factors was assigned a grade (A, B, or C) based on the data abstraction grading guidelines developed. The overall assessment was predicated on the global assessment of the article, considering the individual components, but was not an average. Thus an article that had, for example, a critical flaw in methodology would be a “C,” even if other issues were satisfactory. During this phase, or during the initial assessment or data abstraction phases, disagreements or questions about the articles or information were discussed with at least the senior member of the team in order to reach consensus. The specific definitions used in the quality assessment are provided here:

### Time frames

- Contemporaneous time frames
- All studies with time frames between A and C
- Non-contemporaneous

### Samples (both VA and non-VA)

- Representative or national samples (both VA and non-VA)
- All studies with samples between A and C
- Small, limited, unequal or non-representative samples

### Quality measurements

- Specified and identical measures with a similar assessment format for those measures
- All studies with quality measurement between A and C
- Dissimilar measures and/or dissimilar assessment methods

### Outcomes

- Outcomes are either well established clinical endpoints or processes strongly associated with well-established clinical endpoints
- All studies with outcomes between A and C
- Outcomes are structures, processes or clinical endpoints that are not well-established or are indirect measures of quality

Importance of measures (for example, number of clinically relevant indicators, potential impact of indicators)

- High
- Medium
- Low

Statistical methods

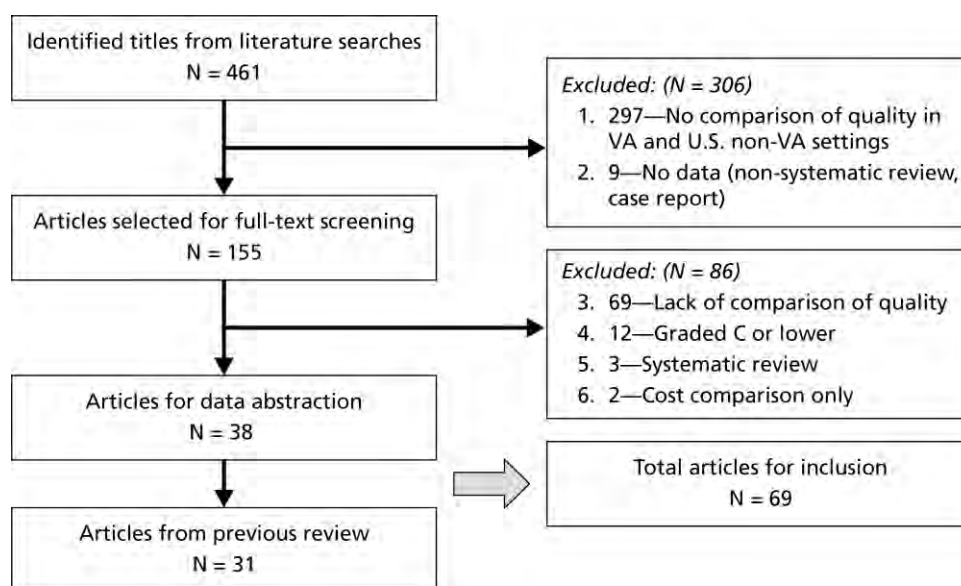
- Sufficient sample size and/or methods appropriate to address hypothesis(es)
- All studies with statistical methods between A and C
- Insufficient sample size and/or methods questionable to address hypothesis(es)

**Data Synthesis.** We classified articles along the dimensions of quality outlined by the Institute of Medicine. Within these categories, studies were sufficiently heterogeneous to preclude meta-analysis. Consequently, our synthesis is narrative.

In total, 461 articles from 2005 to 2015 were returned by the literature search (Figure A-2). Of the 306 articles that did not go on for full-text screening, most were due to a lack of comparison of quality between VA and non-VA settings (N = 297). We conducted full-text screening for the remaining 155 articles, of which 86 were excluded (69 because of a lack of comparison of quality, 12 because they were graded “C” or lower, 3 because they were systematic reviews, and 2 because they looked exclusively at cost comparisons). We abstracted new details (related to dimensions of quality) for 31 articles from 2005 to 2009 previously reviewed by Asch et al. Ultimately, an additional 38 new articles underwent full data abstraction, which left us with a total of 69 articles for inclusion in the review.



Figure A-2. Literature Flow for Systematic Review of Quality



MS4675B-A.2

**Strengths and Limitations of Review.** Our review has several strengths, including using systematic methods and using only adjusted results, which more fairly accounts for differences in patient characteristics between VA and non-VA care. Limitations of our review include the possibility of publication bias, in which studies that fail to show a statistically significant difference in a comparison are not submitted or accepted for publication. However, as Asch et al. (2010) point out, it is not clear which directionality of a comparison of quality of care between VA and non-VA facilities would lead to a study not being published. Although we used systematic review methods, it is possible that the patient populations are sufficiently different to make a comparison of results, even though adjusted for differences, subject to bias. Another limitation is almost all of the studies were supported by VA research funding or had VA investigators performing the work, which may have introduced some bias.

## Appendix A.6 Developing Policy Options

This subsection contains additional information regarding the methods used to identify and describe potential policy options for improving VA's ability to provide timely and accessible care to Veterans. There are two parts to this appendix:

Methods to establish criteria for evaluating policy options (Subsection A.6.1)  
Systematic literature review (Subsection A.6.2).

### Appendix A.6.1 Methods to Establish Evaluation Criteria for Policy Options

We began with a standard set of evaluation criteria commonly used to evaluate the value and feasibility of health policy options (Rossell, 1993):

- Economic feasibility, including costs and benefits

- Equity, which refers to the social distribution of costs and benefits
- Effectiveness, which is the extent to which the policy would achieve the stated policy objectives
- Operational feasibility, including both legal authority and ease of implementation
- Stakeholder acceptability, which refers to both political and social acceptability.

In an iterative process utilizing data from our interviews and literature review and input from our in-house experts, we further refined this list to better suit the unique context of VA and the issue of timely access to care. Our final set of evaluative criteria included:

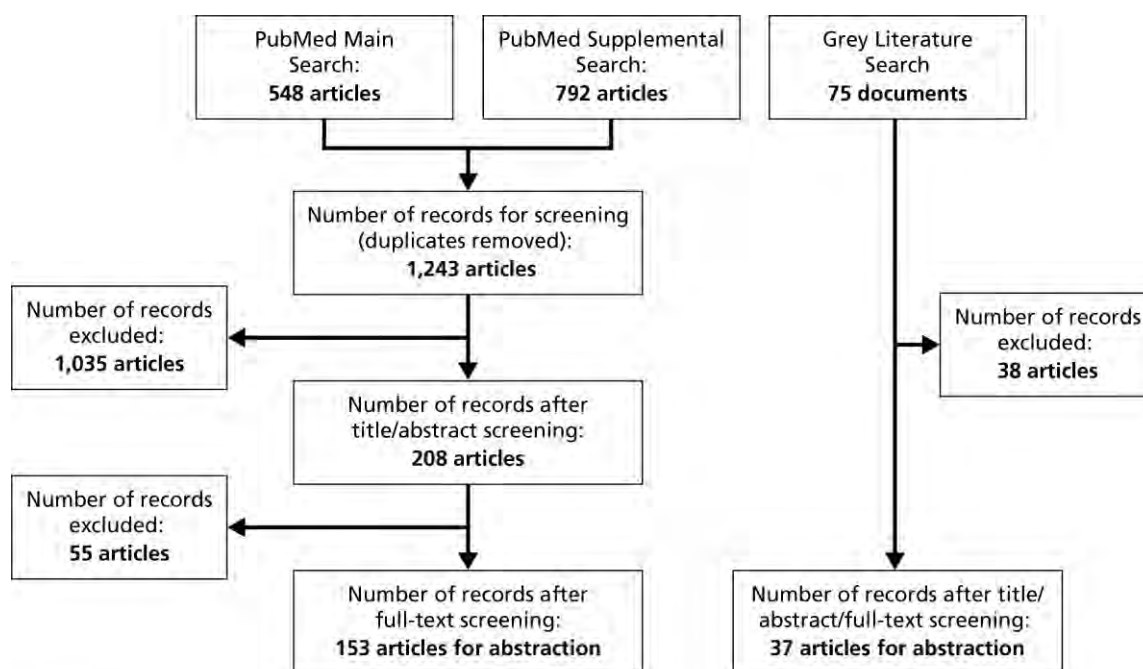
- Impact on access: the extent to which the stated policy option is likely to achieve improvements in timely and accessible care.
- Fiscal impact: direct costs and potential savings (that is, fiscal benefits to be realized) associated with implementing the policy option
- Stakeholder acceptability: the likelihood that the policy option will have sufficient stakeholder support to be politically feasible to legislate or to implement by VA under its existing authority
- Operational feasibility: the ease of implementing the policy option into practice.

We excluded “equity” as a separate criterion because social justice and social distribution are issues impacting social acceptability and, as such, would include the stakeholder acceptability criterion. We also excluded the issue of legal authority from our definition of administrative feasibility, as this is separately covered in detail by Assessment C.

### Appendix A.6.2 Systematic Literature Review

Once an initial list of possible policy options was drafted, we conducted a more exhaustive review of the peer-reviewed and gray literature for options and approaches to improve VA’s ability to provide timely and accessible care (see Figure A-3). Data from the literature review were used to identify new policy options and to modify the initial list, as well as to collect evidence pertaining to the evaluation criteria in order to compare and contrast a final set of policy options.

Figure A-3. Flow Chart of Peer-Reviewed and Grey Literature



MS4675B-A.3

**Peer-Reviewed Literature:** We first searched PubMed for all English-language articles published from 1995 to the present using a broad search strategy that combined terms representing VA resources and capabilities and each of the dimensions of access (see Table A-7). We also conducted separate targeted searches on potential policy options that were mentioned during the key informant interviews and not fully captured in the main literature search, and on topics that were most frequently raised during the interviews, such as contracted care, DoD care, waitlists and scheduling, physician recruitment, and hiring and overall access to care (Table A-8).

Table A-7. Search Strategy: Main Search for Potential Policy Options

Dimension	Strategy
Fiscal and Economic Resources	((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh]))) AND ((financial management[majr] OR economics[majr] OR budgets[majr] OR financing[majr] OR financing, government[majr] OR financing, organized[majr] OR healthcare financing[majr]))
Workforce	(((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh]))) AND ((health manpower[majr] OR personnel management[majr] OR health personnel[majr]))
Physical Infrastructure	(((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh]))) AND ((infrastructure OR facilities[ti]))
Interorganizational Relations	(((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh]))) AND ((inter-organization* OR inter-institution* OR interorganization* OR organizational relation* OR partner*))
Informational Resources	((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh]))) AND (((electronic medical records OR emr OR computerized physician order entry OR cpoe OR computerized order entry OR computerised order entry OR electronic health record* OR Medical Order Entry Systems OR information technolog* OR information resource* OR medical informatics[majr])))
System Boundaries and Size	(((((united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr])) AND ((Organization and Administration[Mesh]))) AND ((size[ti] OR boundary OR boundaries OR limit*[ti]))

Table A-8. Search Strategy: Targeted Search

Dimension	Strategy
Access to VA Care	(health services accessibility[MeSH Terms]) AND united states department of veterans affairs[MeSH Terms]
Specific: Contract Care	<p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND outsourc*))</p> <p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND “fee-based care”)</p> <p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND “purchased care”))</p> <p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND “contract* care”)))</p> <p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND “non-va care”</p>
Specific: Wait lists	(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND waiting list[MeSH Terms]) AND list, waiting[MeSH Terms]) AND lists, waiting[MeSH Terms]
Specific: DoD	(((((“United States Department of Defense”[Mesh]) AND (united states department of veterans affairs[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti]))
Specific: Workforce	<p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND (personnel staffing and scheduling[MeSH Terms]))</p> <p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND (salaries and fringe benefits[MeSH Terms]))</p> <p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND personnel selection[MeSH Terms]))</p> <p>(((((“united states department of veterans affairs”[majr] OR hospitals, veterans[majr] OR veterans health[majr] OR veteran[tiab] OR veterans[tiab] OR va[ti])) AND “contract* care”))</p>

**Review and Abstraction Process:** Two researchers independently screened first titles, then abstracts, and finally the full texts of the identified articles, applying a consensus-based set of inclusion criteria at each stage. Briefly, we included articles of any type or study design that analyzed, made recommendations, and/or discussed barriers and facilitators to providing timely and accessible care within VA. Three researchers then independently reviewed the full texts of then-accepted articles and abstracted the following information into an Excel spreadsheet: author, title, manuscript type, objective, primary domain, secondary domain, and key findings. Based on the key domains in the conceptual framework, the domains were community care, workforce, physical infrastructure, information technology, interorganizational relationships other than community care, and care management. We also included wait time as a domain to capture articles related to scheduling and timeliness of appointments.

**Grey Literature Search:** We searched think tank, research institute, and foundation websites (for example, RAND, Commonwealth Fund, Brookings Institute, Cato Institute, Kaiser Family Foundation, Robert Wood Johnson Foundation, National Bureau of Economic Research) for research and policy reports pertaining to timely and accessible care in VA. We also searched multiple government websites, including VA, DoD, Congressional Budget Office, GAO, Congressional Research Service, and VA Office of Inspector General and Defense Technical Information Center, for relevant reports and data pertaining to VA's ability to provide timely and accessible care. Additionally, we reviewed congressional testimony before the House Veterans Affairs Committee and Senate Veterans Affairs Committee to better understand congressional priorities and potential challenges to policy development, adoption, and implementation, and to capture the perspectives of key stakeholders. Finally, we searched gray literature sites such as the New York Academy of Medicine Grey Literature Report, GreyNet International, Google Scholar, and Google for any additional data or research and policy reports. We searched for reports published between 2005 and the present and, where relevant, used a combination of search terms representing VA capabilities and resources, access to care, and each of the dimensions of access. We restricted the date range for our search of congressional testimony to the past two years to identify the most recent policy priorities in the context of the current wait-time issues facing VA. Two researchers independently reviewed the titles, abstracts, and full-texts of the articles and abstracted the following information into an Excel spreadsheet: author, title, primary domain, and key findings.

## Appendix A.7 Projecting Future VA Capabilities and Resources

This subsection covers additional methods used in projecting future VA capabilities and resources to provide timely, accessible care. There are two topics covered in this subsection:

- Data sources, input preparation, and data validation (Subsection A.7.1)
- Analytical methods (Subsection A.7.2).

### Appendix A.7.1 Data Sources, Input Preparation, and Data Validation

This subsection details the data sources and model input preparation necessary to implement the projection models. Specifically, this subsection details the VA EHCPM demand RVU forecasts and the VA staffing data obtained from the VA Productivity Cube. The EHCPM initially forecasts RVU demand by VA Sector (geographic area) and by EHCPM Healthcare Service Category. The EHCPM then translates the forecasts from VA Sector-Healthcare Service Categories to VA specialties and administrative parents. Our analysis uses the results of these EHCPM translations, but we independently verified the quality of the mapping. This subsection also presents an independent comparison of the data used for quantifying how historical FTE data from the VA Productivity Cube and EHCPM RVU forecasts differ from observed FY14 FTE and RVU data provided by VA and compiled by Assessment G. The data received from Assessment G data are used in Section 3 on workforce and human resources.

**VA Staffing Data.** The VA staffing data used in the projection models are taken from the VA Productivity Cube and contain the number of physician clinical FTEs from 2009 through 2015 for each administrative parent and specialty. The VA staffing data are mostly complete, but there are some specialties and specialty-administrative parent combinations that do not contain enough historical data to build an FTE projection model. We exclude any specialty-administrative parent combinations with less than six years of data from the projection model.

**Demand Forecast Data.** The EHCPM forecasts made available to Assessment B are based on historical data through FY13 with forecasts for RVUs for FY14 through FY23. The EHCPM 10-year annual forecast of demand is measured in RVUs and provided by VA specialty and VA administrative parent. To generate this, the EHCPM projects Healthcare Service Categories by repackaging Current Procedural Terminology codes based on Milliman's proprietary model. The EHCPM projects Veteran enrollment and utilization for 83 Healthcare Service Categories for each of 425 VA geographic sectors that are areas defined by the residential locations of Veterans. The model determines the number of Veterans enrolled in the VA for each forecasted year and then estimates the portion of care that the enrollees will demand from the VA (that is, reliance) (Milliman Inc., 2014). The EHCPM then translates the forecasted RVUs by VA sector and Healthcare Service Category into forecasted RVU by VA specialty and administrative parent by matching the sectors to administrative parents and Healthcare Service Categories to the appropriate physician specialties.

**Independent Evaluation of Converting EHCPM Data Forecasts from Healthcare Service Category and VA Sector to VA Specialty and Administrative Parent.** We independently assessed this conversion by performing our own basic RVU mapping of Healthcare Service Categories to physician specialties and VA sectors to administrative parent. Three RAND researchers, one a physician (MD) and subject matter expert, reviewed the Healthcare Service Category descriptions and attributed them to the VA physician specialties.

We reallocated Veteran statistics from VA sector to administrative parent catchment area by using 2014 Veteran population at the U.S. Census block group level as a proxy for Veteran statistics in general. We pulled Veteran estimates by block group from the American Community Survey five-year estimates for 2014 along with the associated spatial block group GIS files. Because VA sectors are composed of collections of whole counties, we were able to

code these block groups unambiguously by VA sector. We then calculated the total number of Veterans (as measured by the American Community Survey) for each VA sector by summing the Veteran population for each of the block groups in each sector. We then calculated the fraction of the Veteran population from each sector residing in each block group by dividing the population of that block group by the Veteran population of the sector in which it is contained. We then coded block groups by 40-mile drive radius (which is very similar to the one-hour drive time radius) to approximate the prime catchment area for each administrative parent. With this coding in place, we were able to calculate the percentage of the Veterans from each sector falling into the prime catchment area of each administrative parent. These fractions could then be used to translate any projection about Veteran populations stated at the VA sector level to the administrative parent level.

We then summed the pertinent Healthcare Service Category for each specialty and used the proportion of demand from each sector that applied to each administrative parent. We compared the resultant projected summed Healthcare Service Category by specialty-administrative parent with the projected RVU by specialty-administrative parent performed by Milliman on behalf of VA.

In general, RAND's conversion of Veteran conditions and residences to VA physician specialties at facilities matched quite well to the same conversion as performed for EHCPM. The Assessment B team independently converted the data for 14 specialties at 118 administrative parents. Of the 1,652 possible specialty-administrative parent combinations, 85 percent showed correlations of Assessment B and EHCPM conversions greater than 0.9. The low correlations were clustered within three specialties: nephrology (37 of 118 administrative parents with correlation <0.9), psychology (50 of 118 administrative parents with correlation <0.9), and obstetrics and gynecology (81 of 118 administrative parents with correlation <0.9). Other specialties exhibited correlations less than 0.9 in 15 percent or fewer of the administrative parents. This likely indicates differences in the conversion logic used by Assessment B and the EHCPM to match Healthcare Service Categories to physician specialties. The overall conclusion is that an independent look at the conversion process appears to validate this aspect of the demand projection used in workforce planning by VA.

**Differences Between the EHCPM Projected Demand RVUs and Observed RVUs in FY 2014.** We obtained projected demand from the EHCPM for FY 2014 through FY 2019. We also obtained observed RVUs from Assessment G for FY 2014. Assessment G obtained the observed RVU data from the VISTA New Person File, the VISTA Patient Care Encounter File, and the Monthly Program Cost Report. Comparing across the projected and actual data for FY 2014, we found that the FY 2014 EHCPM projected demand estimates are close to the observed data provided by Assessment G though not identical. Nationally, the EHCPM forecasted RVUs were between five percent and 15 percent larger than the observed RVUs for most specialties. The discrepancies did not appear to be administrative parent-specific and it is unclear what the causes are aside from the fact that EHCPM RVUs are projections from FY 2013 and the data from Assessment G are observed actuals from FY 2104.

**Differences Between Data from VA Productivity Cube and from Assessment G on FTEs in FY 2014.** The FTE data used in the projection models is taken from the VA Productivity Cube and



contains the number of physician clinical FTEs from 2009 through 2015 for each administrative parent and specialty. We also obtained FY 2014 FTE data from Assessment G. Assessment G obtained their FTE data from the VISTA New Person File, the VISTA Patient Care Encounter File, and the Monthly Program Cost Report and generated FTE counts by administrative parents and specialty. Comparing across the two sources of FTE data, we found only very small differences, typically less than 5 percent for most specialties. It is unclear what is generating the small differences between Productivity Cube FTE data and the FTE data compiled and provided by Assessment G. We use the FTE data provided by Assessment G for our assessment of VA's workforce and human resources in Subsection 3.2 so that it is consistent with Assessment G. We use the FTE data from the Productivity Cube for the projection model since it was the only source that provided historical data that could be used to model trends.

### Appendix A.7.2 Description of Analytic Methods

In this subsection, we describe the analytic method used in the forecasts. This subsection builds upon the discussion presented in Subsection 2.8.2.

**Increasing the Number of Resources.** The purpose of this projection, supply scenario one, is to assess how well projected supply (as measured by physician clinical FTEs) aligns with projected demand (measured in RVUs) overall, by provider specialty, by administrative parent, and by VISN. The provider forecasts at the administrative parent level project supply that would be produced if historical hiring trends persist. The supply projection is modeled as a linear regression model where the response is the number of physician FTE for a given specialty-administrative parent pair and the regressor is the year. The equation below shows the structure of the provider administrative parent-level regression model:

$$y = \beta_0 + \beta_1 * year + \varepsilon$$

Where  $y$  is the number of provider FTEs for a given specialty,  $\beta_0$  is the intercept, "year" is the regressor and the specified year to forecast,  $\beta_1$  is the coefficient for the year regressor, and  $\varepsilon$  is an error term representing the unexplained variation in the data. The model uses at least six but up to seven years of VA staffing data to fit the regression and forecast FTEs for FY 2015 through FY 2019 by administrative parent and VA specialty. In general, the fitted regression models had highly variable quality of fits. Seventy-five percent of the administrative parent specialties had an  $R^2$  greater than 0.15, 50 percent had an  $R^2$  greater than 0.43, 25 percent had an  $R^2$  greater than 0.72, and 10 percent had an  $R^2$  greater than 0.87. The analysis team decided to use these models for forecasts despite the highly variable fit quality because the intent is to capture overall trends over the seven years of historical data; some VA administrative parent-specialty combinations added provider FTEs and then removed them over the course of the seven years, which decreased the quality of fit for the model. Because for some models there are quality of fit concerns and because provider FTE trends found in the seven years of data may not continue for the several years in the future, the analysis limits the provider FTE forecasts to a maximum of a 30-percent change from the mean FTEs in FY 2014.

Having conducted our own projection of FTEs and having validated the projections of demand provided measured in RVUs by the EHCPM, the analysis team took the difference between these projections to identify in which administrative parent and specialty combinations where

projected growth in demand was expected to exceed projected growth in supply. The difference between EHCPM forecasted percent change in RVU (Demand) to the FTE (Supply) forecasted percent change from FY14 to FY19:

$$\text{FTE} - \text{RVU Difference} = (\text{Forecasted \% change in FTE from FY14 to FY19}) \\ - (\text{Forecasted \% change in RVU from FY14 to FY19})$$

The analysis focuses on five-year projections in the report because these projections are more reliable than are 10-year projections, which would be highly unpredictable if any systemic changes occurred, such as new legislation or executive policies.

**Improving Provider Productivity.** The purpose of this projection, supply scenario two, is to quantify how increased provider productivity can increase capacity to manage demand increases in the future. The policy options that improve efficiency of internal resources have the potential to enable providers to be more productive. RVU per FTE from EHCPM is used in this analysis as the measure of productivity.

This projection targets administrative parents with low RVU/FTE ratios and increases their productivity to a specified level within a specialty. The specified levels are then varied in three ways:

- **Productivity Level 1:** All administrative parents operate at least at the FY 2014 25th RVU/FTE percentile within each specialty nationally.
- **Productivity Level 2:** All administrative parents operate at least at the FY 2014 50th RVU/FTE percentile within each specialty nationally.
- **Productivity Level 3:** All administrative parents operate at least at the FY 2014 75th RVU/FTE percentile within each specialty nationally.

For example, if administrative parent A is operating at the 16th RVU/FTE percentile nationally within cardiology, the first bullet analysis would raise their productivity to the 25th percentile nationally within cardiology. The productivity of the administrative parents that operate above the specified level is left unchanged. Increasing the administrative parent productivity will increase the number of RVUs that can be seen per provider FTE.

This analysis quantifies how many RVUs would be gained for each specialty if all administrative parents were performing at the three productivity levels for each specialty. Then the analysis compares the gain in RVU with the projected increased demand of RVU from FY 2014 to FY 2019 from the EHCPM. In addition, for supply scenario three, we project the RVU gains if both the FTE forecasts and productivity gains were realized. The analysis also quantifies the percentage of RVU demand that would have to be redistributed if provider productivity increased.

## Appendix B Survey

### 1.1 Appendix B.1 Overview

The 2015 Survey of VA Resources and Capabilities, part of Assessment B, was designed to identify clinically meaningful delays for Veterans in access to care for seven illustrative clinical conditions: PTSD, SUD, TBI, acute coronary syndromes, colon cancer, diabetes mellitus (type 2), and conditions requiring gynecologic surgery. The conditions were chosen based on their importance to VA (for example, high prevalence, congressional focus, service connection) and were selected to represent diversity across care settings, acuity, type of care, workforce, and population characteristics (for example, sex, age, era of military service).

To develop the survey, the team specified clinical care trajectories for each of the seven conditions, based on existing VA and DoD clinical practice guidelines (where available) and on interviews with VA and non-VA subject matter experts. The care trajectories map out the different care paths that a patient with one of the clinical conditions might take, depending on the severity of the condition and the resources available. The survey asked respondents to report how often there were clinically meaningful delays at various junctures in each care trajectory. Where delays were identified, respondents were asked to indicate which of the solution components listed might be important in reducing the delay. The survey also contained questions related to workforce in order to evaluate the difficulties VA may be facing in recruiting, hiring, and retaining the clinical personnel necessary to provide care to Veterans in these clinical populations.

In addition to condition-specific data, the survey sought to gather information at the facility level about issues that negatively impacted provider and system efficiency, about use of purchased care, and about the availability and use of information technology.

Reflecting these goals, the survey had eight modules—a general module focused on facility-level issues, and one module for each of the seven conditions. The survey was sent to the Chief of Staff at the parent facility of each local VA system, nationwide. The Chief of Staff was asked to complete the “general module,” which focused on primary care and topics not specific to the care of one of the illustrative populations, and to send the other modules to the clinical chiefs (or other leadership) best able to speak about care for the clinical condition of interest (for example, chief of cardiology for acute coronary syndromes; chief of gastroenterology for colon cancer).

By virtue of the respondents’ leadership positions and the fact that parallel questions were asked across disciplines and across facilities nationwide, the results offer a unique opportunity to understand common concerns and how those varied, both across clinical specialties and between VA facilities. In addition to questions about specific services, respondents had an opportunity to amplify their answers and to offer general observations about the functioning of the VA health care system and the access to care it provides for Veterans.

Our discussion of the survey results is organized as follows. We begin by describing our methods, including development, piloting, and administration of the survey. We then report

the survey results for the eight modules, beginning with the general module for which the Chief of Staff was the intended respondent. We conclude with some general observations about issues and solution components that figure prominently in the survey results. Tables in Appendix I report the raw data from each survey module. Additional tables referenced in this text are also in Appendix I.

## 1.2 Appendix B.2 Methods

### 1.2.1 Appendix B.2.1 Questionnaire Development

We developed survey questions targeted to the Chief of Staff at each parent facility. We also developed questions designed to be answered by the service chiefs most appropriate for each of the seven clinical care trajectories. These questions were designed to identify potential bottlenecks in care at key junctures in each of the clinical care trajectories. The survey questions first elicit respondents' perceptions about the existence of *clinically meaningful* delays. Specifically, respondents were asked to “*Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.*” We use the term *clinically meaningful* in our discussion as shorthand for this more precise definition. Here is an example survey question from the colon cancer module.

Consider the use of colonoscopy for patients with the following indications. In the PAST 12 MONTHS, how often were there delays in colonoscopy for patients with the following indications: Screening for average-risk patients; Screening for high-risk patients (for example, strong family history of colon cancer or personal history of inflammatory bowel disease.)

Respondents indicate the proportion of patients with clinically meaningful delays on a five-point scale ranging from “No delay” to “51 percent or more of patients experience a clinically meaningful delay.”

Respondents who indicated that delays sometimes exist were asked to formulate a solution for reducing delays and to then rate the importance of various components to that solution (using a four-point scale ranging from “critically important” to “unimportant”).

Based on your knowledge and experience, think of the most effective way to reduce delays for colonoscopy. How important are each of the following elements in your solution: Less use of colonoscopy for screening; Discourage inappropriate colonoscopy (for example, surveillance for adenomas earlier than recommended by guidelines); Better scheduling mechanism to avoid no-shows; Hire more gastroenterologists; Build more procedure rooms; Increase weekend and evening availability of colonoscopy; Allow patients more access to colonoscopy outside VA system (purchased care)?

Each module also contained a question that asked respondents to identify issues that affect provider and system efficiency, and to rate the degree to which each of the following had a negative impact:

- Providers performing clinical activities that could be performed by individuals with less training

- Providers performing administrative activities that could be performed by others
- Residency training/teaching requirements
- Insufficient clinical/administrative support staff
- Inadequate scheduling system and policies (for example, hard to cancel or reschedule, coordinate)
- Unnecessary documentation requirements or inefficient CPRS interface
- Patient no-show rates
- Poor patient flow management (room/bed turnover, appointments)
- Too many administrative requirements (Initiatives/Policies/Programs).

There were two questions about workforce recruitment and retention: We asked respondents whether they had difficulty recruiting and retaining clinicians with expertise in the clinical condition of interest. The chiefs of staff were asked about staff categories that spanned multiple conditions. For those facilities reporting difficulties in recruiting or retaining staff in a given category, respondents were asked to identify barriers to recruitment and retention. Suggested barriers were the same for the Chief of Staff and all disease-specific modules. Possible barriers to recruitment included the following:

1. Senior management does not agree to post new position
2. Non-competitive wages
3. Work schedule (for example, call requirements)
4. Benefits (for example, health insurance, leave, continuing education, travel)
5. Equipment/resources/office space
6. Facility condition
7. Case types/complexity
8. VA reputation
9. No academic affiliation/lack of protected time for early career investigator
10. Geographic location of facility
11. HR process (for example, time to advertise; length of time from job offer to start date)
12. Lack of qualified applicants

We were also interested in understanding why there might be problems in retaining the same staff categories. Possible barrier options were as follows:

1. Lack of opportunity for professional growth/promotion
2. Dissatisfaction with supervision/management support
3. Dissatisfaction with support staff
4. Dissatisfaction with physical demands of the job

5. Lack of frozen pathology or gynecology backup
6. Lack of trained operating room support or lack of post-operating room nursing support
7. Dissatisfaction with workload
8. Lack of incentives or “management levers” to encourage productivity (that is, no accountability)
9. Organizational culture that does not prioritize/encourage productivity
10. Administrative/program demands
11. Lack of professional autonomy
12. Dissatisfaction with pay
13. Work schedule

The categories for barriers to recruitment and retention were developed from existing VA survey questions, retention and recruitment issues raised in the literature, and in consultation with VA. All survey questions were reviewed by a range of VA and non-VA survey, data, and clinical experts and then revised.

### 1.2.2 Appendix B.2.2 Pilot Test

Each survey module was pilot-tested by a sample of two to five additional VA subject matter experts identified by RAND and VA staff. Pilot study respondents were asked to provide feedback on the survey instructions, questions, and time required to complete each module. The survey was revised based on feedback from the pilot testing. To the extent possible, question formats were consistent across modules.

### 1.2.3 Appendix B.2.3 Sample Frame

The survey sample frame included all of VA’s 141 administrative parents (for example, local health care systems with at least one hospital and its affiliated clinics). The administrative parent within VA is defined as:

A collection of all the points of service that a leadership group (Medical Facility Director, Deputy Medical Facility Director, Chief of Staff, Associate or Assistant Director, and Nurse Executive) manages. The points of service can include any institution where health care is delivered. All of the data that originate from these points of service roll up to a single station number representing the administrative parent for management and programmatic activities.

The administrative parents are distributed across the United States and the territories, including the Philippines and Puerto Rico (see Table B-1).

## Assessment B (Health Care Capabilities)

**Table B-1. VA Administrative Parents, by VISN**

VISN	Station Number	Name	City, State
1	402	Maine VA Medical Center	Augusta, Maine
	405	White River Junction VA Medical Center	White River Junction, Vermont
	518	Edith Nourse Rogers Memorial VA Medical Center-Bedford	Bedford, Massachusetts
	523	Boston VA Medical Center-Jamaica Plain	Boston, Massachusetts
	608	Manchester VA Medical Center	Manchester, New Hampshire
	631	Central Western Massachusetts VA Medical Center-Leeds	Leeds, Massachusetts
	650	Providence VA Medical Center	Providence, Rhode Island
	689	Connecticut VA Medical Center-West Haven	West Haven, Connecticut
2	528	Western New York VA Medical Center-Buffalo	Buffalo, New York
	528A5	Canandaigua VA Medical Center	Canandaigua, New York
	528A6	Bath VA Medical Center	Bath, New York
	528A7	Syracuse VA Medical Center	Syracuse, New York
	528A8	Samuel S. Stratton VA Medical Center-Albany	Albany, New York
3	526	James J. Peters VA Medical Center-Bronx	Bronx, New York
	561	New Jersey VA Medical Center-East Orange	East Orange, New Jersey
	620	Franklin Delano Roosevelt VA Medical Center-Montrose	Montrose, New York
	630	New York Harbor VA Medical Center-Manhattan	New York, New York
	632	Northport VA Medical Center	Northport, New York
4	460	Wilmington VA Medical Center	Wilmington, Delaware
	503	James E. Van Zandt VA Medical Center-Altoona	Altoona, Pennsylvania
	529	Butler VA Medical Center	Butler, Pennsylvania

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

VISN	Station Number	Name	City, State
	540	Louis A. Johnson VA Medical Center-Clarksburg	Clarksburg, West Virginia
	542	Coatesville VA Medical Center	Coatesville, Pennsylvania
	562	Erie VA Medical Center	Erie, Pennsylvania
	595	Lebanon VA Medical Center	Lebanon, Pennsylvania
	642	Philadelphia VA Medical Center	Philadelphia, Pennsylvania
	646	Pittsburgh VA Medical Center-University Drive	Pittsburgh, Pennsylvania
	693	Wilkes-Barre VA Medical Center	Wilkes-Barre, Pennsylvania
5	512	Maryland VA Medical Center-Baltimore	Baltimore, Maryland
	613	Martinsburg VA Medical Center	Martinsburg, West Virginia
	688	Washington VA Medical Center	Washington, District of Columbia
6	517	Beckley VA Medical Center	Beckley, West Virginia
	558	Durham VA Medical Center	Durham, North Carolina
	565	Fayetteville VA Medical Center	Fayetteville, North Carolina
	590	Hampton VA Medical Center	Hampton, Virginia
	637	Charles George VA Medical Center-Asheville	Asheville, North Carolina
	652	Hunter Holmes McGuire VA Medical Center-Richmond	Richmond, Virginia
	658	Salem VA Medical Center	Salem, Virginia
	659	W.G. (Bill) Hefner VA Medical Center-Salisbury	Salisbury, North Carolina
7	508	Atlanta VA Medical Center	Decatur, Georgia
	509	Charlie Norwood VA Medical Center-Augusta	Augusta, Georgia
	521	Birmingham VA Medical Center	Birmingham, Alabama
	534	Ralph H. Johnson VA Medical Center-Charleston	Charleston, South Carolina
	544	William Jennings Bryan Dorn VA Medical Center-Columbia	Columbia, South Carolina

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.



### Assessment B (Health Care Capabilities)

VISN	Station Number	Name	City, State
	557	Carl Vinson VA Medical Center-Dublin	Dublin, Georgia
	619	Central Alabama VA Medical Center-Montgomery	Montgomery, Alabama
	679	Tuscaloosa VA	Tuscaloosa, Alabama
8	516	C.W. Bill Young VA Medical Center-Bay Pines	Bay Pines, Florida
	546	Bruce W. Carter VA Medical Center-Miami	Miami, Florida
	548	West Palm Beach VA Medical Center	West Palm Beach, Florida
	573	Malcom Randall VA Medical Center-Gainesville	Gainesville, Florida
	672	San Juan VA Medical Center	San Juan, Puerto Rico
	673	James A. Haley VA Medical Center-Tampa	Tampa, Florida
	675	Orlando VA Medical Center	Orlando, Florida
9	581	Huntington VA Medical Center	Huntington, West Virginia
	596	Lexington VA Medical Center-Leestown	Lexington, Kentucky
	603	Robley Rex VA Medical Center-Louisville	Louisville, Kentucky
	614	Memphis VA Medical Center	Memphis, Tennessee
	621	James H. Quillen VA Medical Center-Mountain Home	Mountain Home, Tennessee
	626	Tennessee Valley VA Medical Center-Nashville	Nashville, Tennessee
10	538	Chillicothe VA Medical Center	Chillicothe, Ohio
	539	Cincinnati VA Medical Center	Cincinnati, Ohio
	541	Louis Stokes VA Medical Center-Cleveland	Cleveland, Ohio
	552	Dayton VA Medical Center	Dayton, Ohio
	757	Chalmers P. Wylie VA Ambulatory Care Center-Columbus	Columbus, Ohio
11	506	Ann Arbor VA Medical Center	Ann Arbor, Michigan

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

VISN	Station Number	Name	City, State
	515	Battle Creek VA Medical Center	Battle Creek, Michigan
	550	Illiana VA Medical Center-Danville	Danville, Illinois
	553	John D. Dingell VA Medical Center-Detroit	Detroit, Michigan
	583	Richard L. Roudebush VA Medical Center-Indianapolis	Indianapolis, Indiana
	610	Northern Indiana VA Medical Center-Marion	Marion, Indiana
	655	Aleda E. Lutz VA Medical Center-Saginaw	Saginaw, Michigan
12	537	Jesse Brown VA Medical Center-Chicago	Chicago, Illinois
	556	Captain James A. Lovell VA Medical Center-North Chicago	North Chicago, Illinois
	578	Edward Hines Jr. VA Medical Center-Hines	Hines, Illinois
	585	Oscar G. Johnson VA Medical Center-Iron Mountain	Iron Mountain, Michigan
	607	William S. Middleton Memorial Veterans Medical Center-Madison	Madison, Wisconsin
	676	Tomah VA Medical Center	Tomah, Wisconsin
	695	Clement J. Zablocki VA Medical Center-Milwaukee	Milwaukee, Wisconsin
15	589	Kansas City VA Medical Center	Kansas City, Missouri
	589A4	Harry S. Truman VA Medical Center-Columbia	Columbia, Missouri
	589A5	Colmery-O'Neil VA Medical Center-Topeka	Topeka, Kansas
	589A7	Robert J. Dole VA Medical Center-Wichita	Wichita, Kansas
	657	John Cochran VA Medical Center-St. Louis	St. Louis, Missouri
	657A4	John J. Pershing VA Medical Center-Poplar Bluff	Poplar Bluff, Missouri
	657A5	Marion VA Medical Center	Marion, Illinois

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

### Assessment B (Health Care Capabilities)

VISN	Station Number	Name	City, State
16	502	Alexandria VA Medical Center	Pineville, Louisiana
	520	Gulf Coast VA Medical Center-Biloxi	Biloxi, Mississippi
	564	Fayetteville VA Medical Center	Fayetteville, Arkansas
	580	Michael E. DeBakey VA Medical Center-Houston	Houston, Texas
	586	G.V. (Sonny) Montgomery VA Medical Center-Jackson	Jackson, Mississippi
	598	John L. McClellan VA Medical Center-Little Rock	Little Rock, Arkansas
	623	Jack C. Montgomery VA Medical Center-Muskogee	Muskogee, Oklahoma
	629	Southeast Louisiana VA Medical Center-New Orleans	New Orleans, Louisiana
	635	Oklahoma City VA Medical Center	Oklahoma City, Oklahoma
	667	Overton Brooks VA Medical Center-Shreveport	Shreveport, Louisiana
17	549	North Texas VA Medical Center-Dallas	Dallas, Texas
	671	Audie L. Murphy VA Medical Center-San Antonio	San Antonio, Texas
	674	Olin E. Teague VA Medical Center-Temple	Temple, Texas
	740	Texas Valley Coastal Bend VA Medical Center-Harlingen	Harlingen, Texas
18	501	Raymond G. Murphy VA Medical Center-Albuquerque	Albuquerque, New Mexico
	504	Thomas E. Creek VA Medical Center-Amarillo	Amarillo, Texas
	519	George H. O'Brien, Jr. VA Medical Center-Big Spring	Big Spring, Texas
	644	Carl T. Hayden VA Medical Center-Phoenix	Phoenix, Arizona
	649	Northern Arizona VA Medical Center-Flagstaff	Flagstaff, Arizona

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

VISN	Station Number	Name	City, State
	678	Southern Arizona VA Medical Center-Tucson	Tucson, Arizona
	756	El Paso VA Medical Center	El Paso, Texas
19	436	Montana VA Medical Center-Fort Harrison	Fort Harrison, Montana
	442	Cheyenne VA Medical Center	Cheyenne, Wyoming
	554	Eastern Colorado VA Medical Center-Denver	Denver, Colorado
	575	Grand Junction VA Medical Center	Grand Junction, Colorado
	660	George E. Wahlen VA Medical Center-Salt Lake City	Salt Lake City, Utah
	666	Sheridan VA Medical Center	Sheridan, Wyoming
20	463	Alaska VA Medical Center-Anchorage	Anchorage, Alaska
	531	Boise VA Medical Center	Boise, Idaho
	648	Portland VA Medical Center	Portland, Oregon
	653	Roseburg VA Medical Center	Roseburg, Oregon
	663	Puget Sound VA Medical Center-Seattle	Seattle, Washington
	668	Mann-Grandstaff VA Medical Center-Spokane	Spokane, Washington
	687	Jonathan M. Wainwright Memorial VA Medical Center-Walla Walla	Walla Walla, Washington
	692	Southern Oregon VA Medical Center-White City	White City, Oregon
21	358	Manila VA Clinic	Phillippines
	459	Spark M. Matsunaga VA Medical Center-Honolulu	Honolulu, Hawaii
	570	Central California VA Medical Center-Fresno	Fresno, California
	612	Northern California VA Medical Center-Martinez	Martinez, California
	640	Palo Alto VA Medical Center	Palo Alto, California
	654	Ioannis A. Lougaris VA Medical Center-Sierra Nevada Reno	Reno, Nevada

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

VISN	Station Number	Name	City, State
	662	San Francisco VA Medical Center	San Francisco, California
22	593	Southern Nevada VA Medical Center-Las Vegas	North Las Vegas, Nevada
	600	Long Beach VA Medical Center	Long Beach, California
	605	Loma Linda VA Medical Center	Loma Linda, California
	664	San Diego VA Medical Center	San Diego, California
	691	Greater Los Angeles VA Medical Center	West Los Angeles, California
23	437	Fargo VA Medical Center	Fargo, North Dakota
	438	Sioux Falls VA Medical Center	Sioux Falls, South Dakota
	568	Black Hills VA Medical Center-Fort Meade	Fort Meade, South Dakota
	618	Minneapolis VA Medical Center	Minneapolis, Minnesota
	636	Nebraska-Western Iowa VA Medical Center-Omaha	Omaha, Nebraska
	636A6	Central Iowa VA Medical Center-Des Moines	Des Moines, Iowa
	636A8	Iowa City VA Medical Center	Iowa City, Iowa
	656	St. Cloud VA Medical Center	St. Cloud, Minnesota

### 1.2.4 Appendix B.2.4 Survey Administration

The invitation to participate in the survey was sent via email directly to the Chief of Staff at each administrative parent. The email included instructions, links to the survey modules, and a signed letter from the Under Secretary for Health for the Department of Veterans Affairs encouraging VA employees to assist in the assessments of the Veterans Choice, Access and Accountability Act. The survey was web-based, and each of the eight modules could be completed independently. Survey instructions described suggested respondents, based on job title, for each of the modules. (Please see Table B-3 for the “Targeted Point of Contact” for each module). The Chief of Staff was responsible for completing the general module, identifying the most appropriate individual to complete each of the clinical condition modules, and overseeing the completion and return of all survey modules.

The survey was in the field for approximately two and a half weeks from Thursday, May 7, 2015, through Tuesday, May 26, 2015. During the survey fielding, the Chiefs of Staff were sent reminders via email and phone. Three question-and-answer phone sessions were held during the survey period, and respondents could also ask questions by phone or email.

### 1.2.5 Appendix B.2.5 Response Rates

Overall, the survey response rate was high, ranging from 83 percent for the general module to 94 percent for the PTSD module. These high response rates are reassuring in terms of the potential for bias due to non-response. Table B-2 shows variability in response rates across three key confounders: (1) region, (2) rural or urban designation, and (3) facility complexity as categorized by VA according to seven characteristics (for example, volume and patient case mix, total residency slots).

The general module (for Chiefs of Staff) had the most variability across potential confounders. We estimated a non-response weight using a logistic regression model that included all three confounders. Based on this model, we estimated the probability of response, and weighted estimates based on their inverse probability of response. This approach gives greater weight to facilities with lower response probabilities.

The condition-specific modules all had response rates greater than 90 percent. For these outcomes, we estimated response weights using a restricted model that included only rural/urban location. An evaluation of the weights and response rates suggested that the weights were not necessary; thus we present only unweighted results.

**Table B-2. Response Rates**

	N	General	PTSD	SUD	TBI	Acute Coronary Syndromes	Colon cancer	Diabetes Mellitus	Gynecologic surgery
N		117	117	114	107	100	109	111	107
Overall	141	0.83	0.94	0.91	0.91	0.91	0.93	0.91	0.93
Northeast	26	0.81	0.90	0.90	0.80	0.81	0.94	0.90	0.94
Midwest	34	0.85	0.90	0.90	0.86	0.90	0.83	0.82	0.92
South	50	0.86	1.00	0.98	0.98	1.00	1.00	1.00	0.95
West	29	0.79	0.92	0.81	0.90	0.81	0.88	0.85	0.88
Rural	21	0.76	0.88	0.88	0.79	0.86	0.82	0.88	0.85
Urban	119	0.85	0.95	0.92	0.92	0.91	0.94	0.91	0.94
Complexity 1a	32	0.84	1.00	0.93	0.96	0.93	1.00	1.00	0.93
Complexity 1b	16	0.94	1.00	0.93	0.93	0.93	1.00	1.00	1.00
Complexity 1c	26	0.89	0.92	0.92	0.92	0.88	0.92	0.92	0.96
Complexity 2	32	0.88	0.96	0.93	0.88	0.90	0.88	0.89	0.91

## Assessment B (Health Care Capabilities)

	N	General	PTSD	SUD	TBI	Acute Coronary Syndromes	Colon cancer	Diabetes Mellitus	Gynecologic surgery
Complexity 3	32	0.70	0.85	0.86	0.83	0.89	0.81	0.79	0.84

Note: Response rates are based on responses to each module and indication by the Chief of Staff that the module-specific service is offered within the administrative parent.

### 1.2.6 Appendix B.2.6 Survey Respondents

The recommended staff and selection of job titles for actual respondents are listed in Table B-3.

**Table B-3. Typical Titles of Respondents by Module**

Module	Topic	Targeted Point of Contact	Sample Job Titles for Respondents
1	General Facility Questions	Chief of Staff; Associate Director for Patient Care Services; Head of Primary Care	Chief of Staff, Acting Chief of Staff, Deputy Chief of Staff, Interim Chief of Staff, MD, Medicine Service Line Manager, Secretary to Chief of Staff, Special Assistant to Chief of Staff
2	PTSD	Associate Chief of Staff for Mental Health; Administrative Officer for Mental Health; Chief of PTSD Services	Chief of Staff, Chief of Behavioral Health, Chief of Mental Health, Chief of Psychology, Director of PTSD Division, Coordinator of PTSD program, Lead Psychologist, Staff Psychiatrist
3	SUD	Associate Chief of Staff for Mental Health; Administrative Officer for Substance Abuse Services; Chief of Substance Abuse Treatment Services	Chief of Mental Health Service, Chief of Substance Abuse Treatment Program, Attending Psychiatrist, Director of Addiction Recovery Treatment Services, Program Manager, Staff Psychiatrist, RN, Acting Chief of Staff
4	TBI	Chief of Staff; Chief of Physical Medicine and Rehabilitation (PM&R); Chief of Neurology; Administrative Officer for TBI, PM&R or Neurology; POC for TBI services	Chief (PMR), MD, Polytrauma/TBI Coordinator, Chief of Staff, Chief of Mental Health, Neurologist, Rehab MD, Staff Psychologist

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

Module	Topic	Targeted Point of Contact	Sample Job Titles for Respondents
5	Acute Coronary Syndromes	Chief of Cardiology; Administrative Officer for Cardiac Services; Chief of Cardiothoracic Surgery; Chief of Internal Medicine	Chief of Cardiology, MD, Chief of Medicine, Chief of Surgery, ACOS Primary Care, Medicine Service Line Manager
6	Colon Cancer	Gastroenterology Point of Contact; Oncology Point of Contact; Oncology Surgery Point of Contact; Laboratory Services Point of Contact	Chief of Medicine, Chief of Gastroenterology, Gastroenterologist, MD, Chief of Staff, Chief of Surgery, Chief of Oncology, Cancer Coordinator
7	Type 2 Diabetes	Chief of Staff; Administrative Officer for Primary Care; Associate Director for Patient Care Services; Head of Primary Care	Chief of Endocrinology, Endocrinologist, MD, Chief of Primary Care, Chief of Staff, Clinical Director of Primary Care, Nurse Practitioner and Diabetes Educator
8	Gynecologic Conditions	Women's Health Point of Contact; Administrative Officer for Women's Health	Chief of Surgery, Gynecologist, Women Veterans Program Manager, Women's Health Medical Director, MD, ACOS (ambulatory care)

### 1.2.7 Appendix B. 2.7 Data Analyses and Presentation

Data were analyzed at the level of each administrative parent (N = 141) and aggregated to national estimates. Stata (version 13) and SAS (version 9.3) were used for data analyses. In reporting these data, we summarize quantitative survey results for each of the eight modules. With regard to delays, we focus on items where respondents report that more than 10 percent of patients experienced a delay in the service in question. We refer to delays experienced by more than 10 percent of patients as “frequent.” We also present findings on workforce issues, use and availability of health IT, and efficiency issues.

Where respondents identified problems, we asked them to formulate a solution and rate the importance of each of various elements of the solution (for example, increase clinical staff, increase space for patient care).

Tables in the second half of this report present aggregated raw survey results in the basic format in which questions were asked. We reference the relevant table(s) in discussing our findings.

A note about the “NA” response. For all Likert-type questions, an NA response was allowed. In the raw survey results, we present NA as a response category, and include it in the denominator wherever percentages are given. In the narrative description and interpretation of



the results, we exclude NAs from the denominator. We do this because, in most cases, the meaning of “NA” is apparent from the context (for example, bariatric surgery, interventional cardiology, and residency training programs are examples of services that are known not to exist at many institutions), and the interpretation is more intuitive with the exclusion. The one exception is the presentation of the “solutions element” and efficiency questions. For these types of questions, the meaning of “NA” is less clear, and the NA response is infrequent. Therefore, to keep the descriptions of these results numerically consistent with the large number of tables, we do not exclude NA from the denominator here. We do not expect that the results would change meaningfully if we did otherwise.

### 1.3 Appendix B.3 Results

#### 1.3.1 Appendix B.3.1 General Module: Chief of Staff as Main Respondent

##### **Background**

The general module was designed to identify clinically meaningful delays in primary care and to assess other centrally managed factors related to patient care, including recruiting and retaining primary care staff, use of purchased care, and IT.

##### **Survey Results**

The overall response rate to the general module was 83 percent (N = 117). Below we report survey responses regarding delays in care, issues affecting provider and system efficiency, workforce issues, experiences with purchased care, and the availability and use of information technology.

##### **Delays**

Respondents were asked about delays at two care junctures: (1) obtaining a “new patient” appointment in primary care, and (2) obtaining a follow-up appointment in primary care. Specifically, we asked respondents to “*Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.*” Respondents who reported delays were asked to formulate a solution and to rate the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) of their solutions.

##### Juncture 1: Obtaining a “new patient” appointment in primary care

Reported delays are detailed in Table I-4. Survey respondents (N = 114) were asked what percentage of patients experienced frequent delays in obtaining a primary care appointment as a new patient. Those who indicated frequent delays were asked to rate the importance of a range of potential solutions (for example, create additional space for patient care) on a four-point scale ranging from “critically important” to “unimportant.”

Slightly more than half of respondents indicated that within the previous 90 days, no patients had experienced a clinically meaningful delay trying to obtain a new primary care appointment within their local health care system. Frequent delays (that is, experienced by more than 10 percent of patients seeking appointments) were reported by 5 percent of respondents.

## Assessment B (Health Care Capabilities)

---

Respondents (n = 49) who reported delays also answered the question on the most effective ways to reduce such delays (Table I-5). The following solution components were most frequently identified as “critically” or “very important”:

Increase the number of licensed independent practitioners	94%
Increase the number of other personnel	80%
Improve information technology	77%
Change “central office policies” that affect workflow and efficiency	73%
Create additional space for patient care	71%
Improve personnel supervision, management, or incentives	67%
Implement or increase the availability of telehealth services	45%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	45%
Some other solution(s)	33%
Increase weekend and evening availability of services	31%
Acquire and/or improve availability of equipment	24%

### Juncture 2: Obtaining a follow-up appointment in primary care

A question about delays in obtaining a follow-up (rather than initial) primary care appointment produced similar responses (Tables I-6 and I-7).

### **Issues Affecting Provider and System Efficiency**

A total of 112 respondents reported how provider and system efficiency were affected by a number of issues, including providers performing administrative tasks or tasks that could be performed by individuals with less training (Table I-8). The following issues were most frequently identified as “a fair amount” or “a lot”:

Too many administrative requirements	86%
Providers performing administrative activities that could be performed by others	84%
Inadequate scheduling system and policies (for example, hard to cancel or reschedule, coordinate)	81%
Unnecessary documentation requirements or inefficient CPRS interface	81%
Insufficient clinical/administrative support staff	74%

## Assessment B (Health Care Capabilities)

---

Providers performing clinical activities that could be performed by individuals with less training	68%
Poor patient flow management (room/bed turnover, appointments)	52%
Patient no-show rates	48%
Residency training/teaching requirements	20%

### Recruitment and Retention

We asked about recruitment and retention for a range of core clinical personnel (for example, radiologists, hospitalists) not covered in the other condition-specific modules of this survey. Table I-9 shows responses to the question “did your local health care system have problems recruiting and hiring.” Three-quarters of respondents reported difficulty hiring primary care providers. About 60 percent said recruiting specialized staff such as laboratory or imaging technicians was also a challenge; about half reported difficulties recruiting registered nurses, licensed practical nurses, and clinical nurse specialists. About 20 percent reported that inpatient support staff, social workers, telehealth technicians, and radiologists were difficult to recruit. Respondents who reported recruiting difficulties were asked to suggest the cause (Table I-10). In the case of primary care providers, slightly fewer than one-half cited the geographic location of the facility and non-competitive wages as the main barriers. In the case of specialized support staff, about half of respondents cited lack of qualified applicants as a key barrier, but nearly three-quarters said the wages were non-competitive.

Tables I-11 and I-12 show results for analogous questions regarding personnel retention rather than recruitment. Retention was generally less of a problem: For most service lines, one-third to one-half as many respondents indicated problems with retention. Notable exceptions were primary care providers, nursing, technicians, and administrative support staff; for those categories, respondents thought retention appeared to be as much of a problem as recruitment.

The two most frequently reported reasons for problems in retaining primary care staff problems were dissatisfaction with supervision and management support as well as dissatisfaction with workload. The top two retention problems for administrative support staff were dissatisfaction with management and dissatisfaction with salaries.

### Purchased Care Experiences (Assessment C)

The survey included seven survey questions in this module intended to provide information for Assessment C – Authority, Benefits, and Outside Contracting. Questions were designed to assess the frequency of, and reasons for, referrals to purchased care; and to capture respondents’ experiences with episodes of care, electronic record sharing, priority ratings, and the Non-VA Care Coordination program (Tables I-13 to I-19).

There is a range of purchased care mechanisms, each with different rules for eligibility. To gauge the basis for purchased care use, we asked a series of questions about referral processes. Respondents were asked how often, and why, they refer Veterans out for purchased care. Frequency of referrals varied substantially: 16 percent of respondents refer patients out 1

percent of the time or less; referral rates for other respondents ranged about evenly from 2 percent to 100 percent of the time. More than three-quarters of respondents indicated that a lack of clinical services at VA was the most important reason for referring patients to non-VA care; far fewer respondents mentioned either travel distance or wait time as primary reasons.

Respondents were also asked about data collection and sharing of health records. In response to a question about how often the VA facility collects data about wait times with non-VA providers, one quarter of respondents said they never collect such data; only 14 percent of respondents do it all of the time; and the remaining respondents answered some or most of the time. Respondents were also asked about whether, and how often, they share electronic health records with non-VA providers. About one-half said that they never share such data, and only 5 percent said they always do; the rest reported that they share such records some or most of the time.

Internal processes for scheduling appointments are also important because they help convey how VAMC staff interpret the legal authorities for purchased care. We asked about various internal processes. Almost all respondents indicated that they have implemented the Non-VA Care Coordination program. We were also interested in the role of priority ratings, which are intended to ensure that certain Veterans are enrolled in the health care program before others. About 40 percent of respondents answered that they consider Veteran priority ratings and the service-connection of the injury or disease when scheduling appointments. However, only a few respondents said that they bump Veterans from scheduled appointments to accommodate the appointment needs of a Veteran from a higher priority group.

In an effort to determine whether only one referral is needed for visits to a single specialist over various periods of time, respondents were also asked several questions about episodes of care. Respondents were first asked about situations where referrals are for care that requires more than one visit. Eight percent of respondents said that they would need a separate referral for each visit. The rest of the respondents were about equally split between reporting that one referral would cover all related visits to the specialist within a 60-day timeframe, and indicating that some other method applied.

Asked about situations where the care would span a period longer than 60 days, about 20 percent indicated that the Veteran would need a separate referral for each visit. The remainder were about evenly split between stating that one referral would still cover all related visits regardless of timeframe, and believing that another method was used.

### **Information Technology**

Information technology questions for the Chief of Staff focused on the availability of wireless internet access and on the use of Telehealth (Tables I-20 to I-30).

Internet access. Wireless Internet (wifi) access enables use of mobile technology, such as iPads, both for patients and for providers. According to our respondents, patients and guests can expect wifi to be reliably available everywhere at only 21 percent of VAMCs, and they will find no wifi at all in almost 40 percent of VAMCs. Staff had higher rates of extensive reliable access, but nearly 40 percent of them also have no access at VAMCs. Wifi access is even lower at CBOCs: 72 percent provide no wifi for patients, and 64 percent do not have it for staff.

Telehealth. Telehealth at VA is divided into three categories. Store-and-forward Telehealth is used to transfer images in a non-synchronous manner. A major use of this tool is for radiology reading, which is done offsite. About one-third of respondents report using remote reading as a constant service; 56 percent say they use the service only at night. When reading is done offsite, facilities tend to select interpretation services for their store-and-forward data from providers that are outside either their administrative parent (58 percent) or entirely outside VA (47 percent).

Two other IT tools are clinical video telehealth in which providers and patients communicate by synchronous video, and home telehealth, which allows providers to monitor patient clinical measures like glucose levels or blood pressures while patients remain at home. According to respondents, among the seven conditions analyzed for this survey (PTSD, SUD, TBI, colon cancer, type 2 diabetes, acute coronary syndromes, and gynecologic conditions), clinical video telehealth between provider and patient was the most widely used telehealth modality. Store-and-forward telehealth was the technology least likely to be used for this purpose. About two-third of facilities confirmed that none of these technologies was available for use with colon cancer patients.

Clinical video telehealth can be conducted between VAMCs, from a VAMC to a CBOC, or even from the facility to a patient's home. We found that telehealth providers were usually (77 percent) at VAMCs, and patients were usually at CBOCs, particularly small to medium sized CBOCs, although occasionally the converse is true.

Home telehealth monitoring. Respondents were asked how long the average patient spends in a home monitoring program. About half said four to six months or less; one in five said more than 12 months. Nearly half of respondents said that the primary reason patients stop participating in home telehealth is that their health improves.

Asked about the size of their home telehealth programs, about half of the respondents reported that between 100 and 500 patients were enrolled at their local VA system; about one-third said that more than 500 patients were enrolled.

Finally, we asked where the home telehealth providers are located relative to the patients (more than one response was allowed). About one-half said that providers are sometimes located at the patient's primary CBOC and about one-third said they were sometimes at a different VA facility within the same local system. No respondent said that outside vendors provided home telehealth offsite.

### ***Free-text comments***

Comments that respondents offered augment the detailed survey results regarding clinically meaningful delays in care, hiring and retention of staff, IT, and use of purchased care.

Policies and mandates of the VA Central Office were a reoccurring theme in respondent comments. For example, "Policies get pushed down from Central Office that are often more mandates than guidelines and recommendations without field input or sufficient consideration for clinical repercussions." Respondents indicated that many policies and standards are based on a "one-size fits all" approach and that there is a "disconnect between Central Office and the

facilities providing the care.”

Several respondents felt that VA Central Office policies and programs are implemented “without thought of the impact on the field or the needs of the Veterans.” Others noted that VA policies are bureaucratic and politically motivated. For example: “VA has been overrun with bureaucratic policies and oversight that often lays in direct contrast to access and quality care for our Veterans. The idea that ‘if a little is good, much more must be better’ is the standard operating procedure of VA” and “Central Office seems solely politically driven and is not using best medical evidence to drive decisions on access and focuses on process not outcome measures.”

Many respondents viewed the scheduling software as inefficient, antiquated, and inflexible. Respondents also note a lack of support staff to facilitate scheduling. The disconnect between the Central Office and the field with respect to scheduling policies was also noted. For example: “[VA Central Office] imposes reporting criteria that make it difficult to schedule, but facilitate their reporting of our scheduling.” Many respondents also noted the inefficiencies of CPRS including “inordinate amount of clinical reminders, view alerts, suspense, metrics require large amounts of administrative time that could be better used to see patients” and “documentation requirements [are] for regulatory and not medical reasons.”

Inadequate staffing, for both clinical and support responsibilities, figured prominently in respondent comments. Many reported that due to insufficient support staff, burdensome administrative mandates, new training requirements, ineffective staffing modules, and an “overwhelming” number of “clinically insignificant” electronic health record prompts, clinicians were required to perform tasks well below their levels of training.

In addition, respondents noted clinician shortages in primary care, urology, psychiatry, surgery, and orthopedics. Multiple respondents noted that VA salaries were not competitive and felt that inefficient human resources processes, including “lag time” in the hiring process, make it difficult to recruit into VA. One Chief of Staff summarized the situation as follows: “Ability to recruit and retain physicians is a huge problem. VA pay for providers has not kept track with what has been available in our area. Additionally, once we get good providers in place, an unending bureaucracy, difficulty dealing with non-productive clerical staff, and burdensome clinical reminders leads them to consider other jobs. Too many of our provider hires consider VA a “temporary” job until something better comes along or they can move to another area. For the most part, we have the appropriate number of support personnel, but maintaining those with a good work ethic is difficult and getting rid of those who are unproductive is even more difficult. Equipment procurement and contracting are extremely difficult to navigate, making new purchases a challenge. Central Office’s requirements, while noble, fail to take into account the current status of non-VA health care systems across the country. Mandating 30-day evaluations for VA when most clinicians in our area can’t accommodate similar requests is unreasonable. Patients that we send out via Choice are rarely seen any sooner than we could see them in our facility.”

Several respondents noted that limited space and lack of exam rooms pose barriers to efficient patient care. Respondents indicated that primary care providers are frequently limited to a single exam room and that “2 exam rooms per provider would greatly facilitate workload.” The

“cumbersome contracting” and leasing process were noted as barriers in obtaining required space.

Some respondents indicated that they use purchased care when necessary for specialty care and in rural areas; however, other respondents noted that purchased care is “not Veteran-centric” and “is to be avoided if possible since the model of delivery that is a hallmark of VHA quality cannot be assured under these circumstances.” Respondents also indicated that using purchased care presents many challenges, for example, “The difficulties in trying to assure coordination of care through NVCC [Non-VA Care Coordination] and the Choice program is creating substantial additional workload on clinicians that diminishes efficiency.”

### ***Conclusion***

This module of the survey was completed by the Chief of Staff of the parent facility of 117 local VHA systems nationwide, and focused on topics best answered by the person in charge of all clinical departments across the local system. The items included questions on access to primary care, on system efficiency and workforce hiring and retention, on purchased care, and on certain aspects of IT infrastructure.

Chiefs of Staff reported few problems with access to primary care, either for “new patient appointments” or follow-up appointments. Very few (about one in 20) reported frequent delays in access to primary care. This is remarkable in light of the fact that nearly three in four respondents described difficulties recruiting and retaining primary care personnel, and that there were many reports of inefficiencies, inadequate staffing, and provider dissatisfaction.

Those who did report delays overwhelmingly reported that more primary care providers were needed. Nearly as many said that other types of personnel were also needed.

Problems recruiting and retaining primary care providers were reported more often than for any other clinical specialty although there were widespread reports of problems across personnel types. Such comparisons across personnel types must be interpreted with caution, however, since hiring and retention problems might be more apparent for specialties with more personnel.

Below-market wages appeared to be less of a perceived problem for hiring primary care workers than for many other specialists, likely because the wage gap between the private sector and VA is lower for primary care than for other specialties or other types of personnel.

A high proportion of Chiefs of Staff perceive substantial inefficiencies in clinical operations, mostly revolving around burdensome administrative requirements, inadequate IT tools, and inflexible Central Office policies. In aggregate, comments suggest that these problems have had a substantially negative impact on employee morale, and possibly on patient care.

### **1.3.2 Appendix B.3.2 Post-Traumatic Stress Disorder**

#### ***Clinical Background***

Post-traumatic Stress Disorder (PTSD) affects hundreds of thousands of Veterans and service members (Institute of Medicine, 2014). An estimated 7–20 percent of service members who have served in Iraq or Afghanistan report having PTSD (Vasterling et al., 2010; Tanielian &

Jaycox, 2008; Smith et al., 2008; Seal et al., 2007; Hoge et al., 2004). Individuals with PTSD have been exposed to a traumatic event and experience symptoms such as intrusive thoughts and nightmares and alternations in arousal and reactivity; they avoid associations with the traumatic event and experience negative alterations in cognitions and also mood (American Psychiatric Association, 2013).

Research suggests that Veterans exposed to combat are more likely to develop PTSD than those who have not experienced combat. For instance, in one study, the odds of screening positive for PTSD were more than four times higher for Operation Iraqi Freedom Veterans who experienced combat compared with those who did not (Hoge et al., 2006). Individuals with PTSD are also more likely to have a second or third co-occurring mental health disorder. For example, in one study, 70 percent of National Guard soldiers returning from Iraq who were diagnosed with PTSD were also diagnosed with depressive disorders (Kehle et al., 2011). In another study, 41 percent of Veterans with a substance use disorder who served in the Vietnam era or later had comorbid PTSD (Petrakis et al., 2011).

RAND reviewed VA/DoD clinical practice guidelines for post-traumatic stress (VA, Management of Post-Traumatic Stress Working Group, 2010) and interviewed key informants within VA to better understand the course of clinical care for Veterans with PTSD. Within VA, there are typically three stages of treatment: assessment and diagnosis, acute treatment, and relapse prevention/care coordination. Veterans can be initially screened and assessed for PTSD in any of several clinics including primary care, mental health, and specialty PTSD clinics. Female military personnel can also be screened in women's health and at specific women's PTSD clinics at some facilities.

Women Veterans are also screened for military sexual trauma, which can also result in PTSD. All VA primary care and mental health providers are required to complete training on military sexual trauma. VA offers a number of other resources, including national training calls, web-based information, and an annual conference to provide further training (VA, 2015f).

Veterans with PTSD seeking treatment may access psychotherapy or pharmacotherapy treatment within the VAMC and CBOC; the level and number of services available depends on the size and location of these facilities. Patients with severe or refractory PTSD can also be transferred to residential treatment programs, which are available in some VISNs.

Clinical practice guidelines detail evidence-based psychotherapy and pharmacotherapy approaches that are recommended for PTSD treatment (VA, Management of Post-Traumatic Stress Working Group, 2010). Treatment may be provided in primary care or specialty PTSD or mental health clinics (for example, pharmacotherapy) by a variety of professionals, including nurse practitioners, primary care physicians, and psychiatrists. Psychotherapy may be provided in specialty PTSD care or mental health clinics (for example, cognitive processing therapy) by clinical psychologists, licensed social workers, and other licensed mental health professionals. While treatment is typically provided in-person at a VA facility, telemental health can allow a Veteran at a CBOC to receive care from a mental health professional at a remote site. Once symptoms have decreased, the frequency and intensity of treatment can be adjusted, and ongoing relapse prevention or care coordination can be provided through primary care or the specialty clinics at VAMCs or CBOCs.



### Survey Results

A total of 117 respondents answered one or more questions in this module, which contained questions about the frequency of delays and proposed solutions for addressing them. Questions also touched on factors impacting provider and system efficiency, and workforce recruitment and retention.

### Delays

Respondents were asked about delays at two care junctures: (1) PTSD diagnosis and assessment and (2) PTSD treatment. Both of these categories were further subdivided (as discussed below). Specifically, we asked respondents to *“Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.”*

Respondents who reported delays were asked to formulate a solution and to rate the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) of their solutions.

#### Juncture 1: Diagnosis and assessment

Reported delays are detailed in Table I-31. We asked about delays in the following services related to PTSD diagnosis and assessment: in general mental health clinic; evaluation by the PTSD clinical team; evaluation using telehealth in CBOCs; evaluation for mental health services in CBOCs; and self-referred appointment in general mental health clinic. Most respondents said that delays for PTSD Diagnosis and assessment services were infrequent. About half said that no patient experienced delays; 70–90 percent reported that delays that were infrequent. The proportion of respondents indicating frequent delays, by service are presented below:

Evaluation in general mental health within your local health care system	10%
Evaluation by the PTSD clinical team	17%
Evaluation using telehealth in CBOCs (all sizes)	20%
Evaluation for mental health services in CBOCs (all sizes)	30%
Getting appointments when patients are self-referred for an evaluation in general mental health	10%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “elements of the proposed solution.” Tables I-32 to I-36 describe the responses in detail. The responses (N = 36) for “Evaluation in general mental health within your local health care system” are typical (percentages are given as the proportion of respondents who rated the element “critically important” or “very important”).

Increase the number of licensed independent practitioners	83%
Create additional space for patient care	69%
Increase the number of other personnel	69%

## Assessment B (Health Care Capabilities)

---

Improve information technology	64%
Change “central office policies” that affect workflow and efficiency	61%
Improve personnel supervision, management, or incentives	61%
Implement or increase the availability of telehealth services	33%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	28%
Acquire and/or improve availability of equipment	22%
Increase weekend and evening availability of services	19%

### Juncture 2: PTSD treatment

Reported delays are detailed in Table I-37. We asked about delays in the following services related to PTSD treatment: Pharmacotherapy in general mental health, pharmacotherapy in CBOCs, pharmacotherapy using telemental health in CBOCs (all sizes), group or individual psychotherapy in general mental health, group or individual psychotherapy in CBOCs, group or individual psychotherapy using telemental health in CBOCs, group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD, group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD in CBOCs, group or individual psychotherapy provided by telemental health with a provider trained in evidence-based psychotherapy for PTSD, a PTSD specialty bed in mental health residential rehabilitative treatment programs, and intake with the SUD/PTSD treatment program.

Reports of widespread delays were more frequent for PTSD treatment as compared with diagnosis and assessment. Between 20 percent and 40 percent of respondents reported delays in the various services that comprise PTSD treatment. Delays were most often reported in receipt of group or individual psychotherapy in CBOCs (39 percent), receipt of group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD (38 percent), and mental health residential rehabilitation beds (35 percent). The proportion of respondents who said that there were frequent delays at their institutions are shown:

Pharmacotherapy in general mental health	20%
Pharmacotherapy in CBOCs (all sizes)	29%
Pharmacotherapy using telemental health in CBOCs (all sizes)	22%
Group or individual psychotherapy in general mental health	24%
Group or individual psychotherapy in CBOCs (all sizes)	39%

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

Group or individual psychotherapy using telemental health in CBOCs (all sizes)	24%
Group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD	23%
Group or individual psychotherapy with a provider trained in evidence-based psychotherapy for PTSD in CBOCs (all sizes)	38%
Group or individual psychotherapy provided by telemental health with a provider trained in evidence-based psychotherapy for PTSD in CBOCs (all sizes)	24%
A PTSD specialty bed in Mental Health Residential Rehabilitative Treatment Programs	35%
Intake with the SUD/PTSD treatment program	14%

Tables I-38 to I-46 describe the responses for “elements of a proposed solution” in detail. Responses shown here (N = 37) for “Group or individual psychotherapy in CBOCs” were typical (percentages are given as the proportion of respondents who rated the element “critically important” or “very important”).

Increase the number of licensed independent practitioners	83%
Create additional space for patient care	79%
Improve information technology	50%
Increase the number of other personnel	45%
Improve personnel supervision, management, or incentives	45%
Change “central office policies” that affect workflow and efficiency	38%
Implement or increase the availability of telehealth services	36%
Some other solution(s)	24%
Increase weekend and evening availability of services	17%
Acquire and/or improve availability of equipment	14%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	14%

### Issues Affecting Provider and System Efficiency

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

Respondents were asked to describe the degree to which various issues affected provider and system efficiency. Table I-47 describes the results. The proportion of respondents who said that there were frequent delays at their institutions are shown:

Inadequate scheduling system and policies	74%
Insufficient clinical/administrative support staff	72%
Providers performing administrative activities that could be performed by others	72%
Too many administrative requirements	63%
Unnecessary documentation requirements or inefficient CPRS	62%
Patient no-show rates	56%
Providers performing clinical activities that could be performed by individuals with less training	45%
Poor patient flow management	30%
Residency training/teaching requirements	15%

### **Recruitment and Retention**

The facility survey also contained questions that focused on retention and hiring issues. Tables I-48 to I-51 describe the results. Several staff categories are central to treating PTSD, including psychiatrists, psychologists, and support staff such as nurses or physician assistants. Counselors and mental health social workers were also included. About 115 facilities responded to questions about problems recruiting/retaining the given staff position.

More than 80 percent of survey respondents reported problems recruiting psychiatrists and more than half reported problems recruiting psychologists for PTSD treatment. The top two reasons cited for recruitment problems for psychiatrists were non-competitive pay and the geographic location of the facility. About half of respondents reported that the human resources process took too long in hiring psychologists. Geographic location of the facilities was also identified as a barrier to recruiting psychologists.

About half the respondents also reported that psychiatrists and psychologists were the mental health specialties most difficult to retain, once hired. The most commonly cited reasons for problems retaining psychiatrists were dissatisfaction with workload and dissatisfaction with pay. About one-third of respondents also identified burnout as a retention problem. Indeed, 40 percent reported that burnout was the top reason for retention problems with psychologists. A second reason cited was lack of opportunity for professional growth or promotion.

### **Free-text comments**

The free-text comments that respondents provided echo the numerical results.

Many respondents commented heavily on shortages of clinicians, on space for patient care, and the interplay between the two:

## Assessment B (Health Care Capabilities)

---

We are in dire need of more space and more providers. If both were increased, the access issue would be resolved.

We do not have the space to add more clinicians.

Many viewed the VistA scheduling system as a barrier to timely and efficient care:

The scheduling system is archaic, cumbersome, and does not meet the needs of modern health care systems. It needs not a set of “fixes” but replacement.

Rather than having a real time calendar that demonstrates all clinic slots available for booking, in general there are specific slots assigned to a given program (that is, Thursdays from 2-3 pm). If that slot does not work for the patient(s) then it may go unutilized, whereas other services may be able to utilize that slot.

Comments suggest some support for the finding that delays are greater with regard to ongoing PTSD care than with diagnosis and assessment:

Limited providers in the outpatient clinic have resulted in large panel sizes for providers that limit frequency of sessions.

Current staff are insufficient for the demand; cannot get patients back for weekly psychotherapy when necessary.

Comments on telehealth were mixed. Several respondents expressed a desire for more telehealth resources, while others questioned the value or applicability of telehealth:

Better Tele-equipment would be helpful, as well as more available units.

Veterans have not, in our experience, enjoyed attempts to participate in groups via telehealth with a group of Veterans at our parent facility (even our staff who use telehealth equipment to be involved in team discussions feel removed and thus it is more difficult to engage).

There is a general lack of interest in telemental health in the patient population who can travel easily to the medical center.

Several comments highlighted a perception that requirements from VA Central Office and other bureaucracy have a negative impact on efficiency and morale:

Clinicians spend far too much time on nonclinical duties. We have a ridiculous amount of irrelevant trainings TMS [online coursework for staff], for instance.

[We should] focus on clinical care not political care; eliminate government roadblocks and bureaucracy, eliminate irrelevant and unsuccessful measures unrelated to providing good clinical care.

We have to pull clinicians away from clinical care to keep up with the growing amount of time devoted to complete administrative requirements, training, completion of reports, etc. The efficiency of providing care is being greatly reduced.

Policies really need to be made with better vertical as well as horizontal transmission for optimal understanding of local impact.

The documentation requirements and paternalistic rules for managing patients are so overwhelming that it over-tasks the providers and causes huge morale issues.

Regarding personnel supervision and management: We need to be able to FIRE people who cannot or do not do their jobs. Right now that is nearly impossible.

The environment in VHA currently is punitive in many cases, rather than offering rewards for excellent ideas, policies, and procedures.

Respondent comments surfaced several other ideas:

We have a large volume of referrals to contracted providers (about 20 percent) but many Vets insist on being seen at VA.

The evidenced based psychotherapies are a tough sell with the Veterans as whole. It is not easy to get them engaged in a therapy process that requires more active participation—but this is true in the civilian sector as well. I think the national expectation for the adoption of these therapies and their clinical penetration was unrealistically hopeful.

### **Conclusions**

While a majority of respondents indicate that clinically meaningful delays in the care of PTSD patients occur infrequently at their local VA system, it is clear that at many institutions, the demand for some PTSD services such as regularly scheduled evidence-based therapy exceeds supply. Access problems appear to be more common with regard to ongoing treatment than with assessment and diagnosis. Respondents suggest several explanations: ongoing therapy is inherently resource-intensive, patient volume has been increasing, and facilities are substantially constrained by lack of both clinical personnel and physical space.

Respondents also noted a number of inefficiencies, chief among them those created by an outdated scheduling system and by what are viewed by some to be onerous regulations and mandated activities that detract from time available for clinical care.

Respondent comments highlighted the need for more clinical personnel and for more space in which to provide patient care.

Views on telehealth were mixed. Some respondents viewed it as potentially helpful, if more resources could be devoted to it; others questioned whether Veterans would find it useful, especially if they were able to travel easily to the VA medical center.

### **1.3.3 Appendix B.3.3 Substance Use Disorder**

#### ***Clinical Background***

Between 7 and 20 percent of Operation Enduring Freedom/Operation Iraqi Freedom Veterans and service members report heavy alcohol use, 12 percent report illicit drug use (including prescription drug misuse), and 2 percent report illicit drug use (excluding prescription drug misuse) in the past 30 days (Bray et al., 2009). Individuals with SUD can experience a continuum of problems that range in severity from mild to severe. These problems may include cravings and urges to use the substance, development of withdrawal symptoms, and social and occupational impairment (American Psychiatric Association 2013). According to Bray et al., 11 percent of active duty service members in 2008 self-reported the misuse of prescription medications, up from just 2 percent in 2002 (Bray et al., 2009). Within the active-duty military population, those members in possession of prescriptions for pain medications were nearly 3

times more likely to self-report misuse as compared with those without a prescription (Substance Abuse and Mental Health Services Administration, 2002).

RAND reviewed VA/DoD's clinical practice guidelines for SUD (Management of Substance Use Disorders Working Group. 2009) and interviewed key informants within VA to better understand the course of clinical care for Veterans with SUD. Treatment begins with a comprehensive assessment leading to a treatment plan, followed by either medication management of withdrawal symptoms, a brief intervention for someone with less severe alcohol abuse or specialty treatment for individuals with more severe alcohol or other drug use disorders. Medication-assisted withdrawal management can occur in either the inpatient or outpatient setting; treatment can include outpatient or residential psychosocial treatment and/or pharmacotherapy for either alcohol or opiate disorders, which can occur in primary care, specialty mental health, or specialty SUD care. Telemental health can also be used to provide outpatient psychosocial treatment. Frequently there are transitions in care, as when a Veteran is transferred from primary to specialty SUD care, from the emergency department to inpatient detoxification for withdrawal management, or from outpatient to residential treatment.

Opioid disorders should be mentioned specifically, as pharmacotherapy for opioid addiction requires additional resources. Veterans can receive office-based opiate treatment or be treated in Opioid Addiction Treatment Programs, which are more commonly located in specialty SUD clinics. Several requirements are needed to administer pharmacotherapy, including X-waivers for physicians to administer buprenorphine in either primary or specialty care or a licensed methadone program for methadone maintenance. As a result, pharmacotherapy such as methadone may only be available at larger facilities. Treatment for SUD may be complemented with other services including adjunctive treatment from the Pain Clinic, Sleep Clinic, and Specialty Mental Health care.

### **Survey Results**

A total of 114 respondents answered one or more questions in this module, which contained questions about the frequency of delays and proposed solutions for addressing them. Questions also addressed reasons impacting provider and system efficiency, and workforce recruitment and retention.

### **Delays**

Survey respondents were asked what percentage of patients experienced clinically meaningful delays in the following categories: (1) Comprehensive evaluation for SUD, (2) SUD treatment, and (3) SUD care transitions (that is, transitioning from one service or program to another). We further subdivided the three categories into subcategories: Evaluation had eight subcategories (for example, referral to SUD specialty care, referral to methadone clinic), Treatment had 12 subcategories (for example, medication-assisted withdrawal management, SUD psychosocial treatment, methadone maintenance), and Care Transitions had six subcategories.

Once participants reported the percentage of patients experiencing delays, they were asked to think about ways to reduce the number of these delays. For the services with the greatest frequency of delay (that is, the highest percentage of patients experiencing a delay),

participants were asked to formulate a solution that could reduce the number of these delays and to report the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) to their solutions, using a four-point scale (1 = critically important to 4=unimportant). We report only on those solution components identified as important by more than 10 respondents.

#### Juncture 1: Comprehensive evaluation for SUD

There were about 112 respondents for each of the possible eight delay subcategories. The subcategories for which delay was reported the most frequently were those that involved access to care outside of the respondent's local health care system—that is, referral to residential treatment at another administrative parent (44 percent) and referral to fee-basis or contracted SUD care (29 percent) (Table I-52). The proportion of respondents who said that there were frequent delays at their institutions are shown:

Referral to general mental health	7%
Referral to SUD specialty care	8%
Referral to telemental health	11%
Referral to SUD services located in CBOCs (all sizes)	16%
Referral to methadone clinic	20%
Patients who are self-referred for a SUD evaluation in general mental health	5%
Referral to SUD services from the administrative parent to fee-basis or contracted care	29%
Referral to residential treatment at another administrative parent	44%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Tables I-53 to I-60 describe the responses in detail. Responses shown here (N = 58) for “referral to residential treatment at another administrative parent” were typical. The most frequently cited as “critically important” or “very important” were as follows:

Create additional space for patient care	64%
Increase the number of licensed independent practitioners	52%
Increase the number of other personnel	48%
Improve personnel supervision, management, or incentives	38%
Change “central office policies” that affect workflow and efficiency (for example, rules governing documentation or how quickly certain services must be provided)	33%



## Assessment B (Health Care Capabilities)

---

Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	31%
Improve information technology	22%
Some other solution(s)	21%
Implement or increase the availability of telehealth services	17%
Acquire and/or improve availability of equipment	9%
Increase weekend and evening availability of services	7%

We note for both of these SUD comprehensive evaluation services for which respondents reported significant access delays, the most commonly suggested components of solutions were to increase the number of independent licensed practitioners and to create additional space for patient care.

### Juncture 2: SUD treatment or follow-up to the initial evaluation

One hundred thirteen respondents answered the delay questions about the 12 treatment subcategories (Table I-61). The SUD treatments with the most commonly reported clinically significant delays were opiate dependence treatment, when it was provided through purchased or contracted care (33 percent for buprenorphine and 31 percent for methadone maintenance). Other important delays in care reported included psychosocial treatment within residential SUD care (30 percent), and, in CBOCs, pharmacotherapy for alcoholism (all sizes) (20 percent), and psychosocial treatment (19 percent). The proportion of respondents who said that there were frequent delays at their institutions are shown:

Medication-assisted Withdrawal Management for Alcoholism provided as an inpatient within your local health care system	8%
Medication-assisted Withdrawal Management for Alcoholism provided as an inpatient through fee-basis or contracted care	14%
Medication-assisted Withdrawal Management for Alcoholism provided as an outpatient within your local health care system	11%
Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient within your local health care system	5%
Medication-assisted Withdrawal Management for Opiate Dependence provided as an inpatient through fee-basis or contracted care	17%

## Assessment B (Health Care Capabilities)

---

Medication-assisted Withdrawal Management for Opiate Dependence provided as an outpatient within your local health care system	15%
Outpatient SUD Psychosocial Treatment (either group or individual) within your local health care system	8%
Psychosocial Treatment (either group or individual) within Residential SUD care	30%
SUD Psychosocial Treatment in CBOCs (all sizes)	19%
SUD Psychosocial Treatment (either group or individual) using tele-mental health in CBOCs (all sizes)	17%
Pharmacotherapy for Alcoholism provided in specialty mental health clinics within your local health care system	11%
Pharmacotherapy for Alcoholism provided in specialty SUD clinics within your local health care system	6%
Pharmacotherapy for Alcoholism provided in CBOCs (all sizes)	20%
Maintenance Pharmacotherapy for Opiate Dependence: Buprenorphine within your local health care system	15%
Maintenance Pharmacotherapy for Opiate Dependence: Buprenorphine provided through fee-basis or contracted care	33%
Methadone Maintenance within your local health care system	24%
Methadone Maintenance provided through fee-basis or contracted care	31%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Tables I-61 to I-71 describe the responses in detail. Responses shown here (N = 58) for “psychosocial treatment within residential SUD care” were typical: The most frequently cited as “critically important” or “very important” were as follows:

Create additional space for patient care	81%
Increase the number of licensed independent practitioners	66%

## Assessment B (Health Care Capabilities)

---

Increase the number of other personnel	59%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	47%
Improve personnel supervision, management, or incentives	41%
Some other solution(s)	36%
Change “central office policies” that affect workflow and efficiency	31%
Improve information technology	28%
Increase weekend and evening availability of services	25%
Acquire and/or improve availability of equipment	22%
Implement or increase the availability of telehealth services	22%

We note that for both of these SUD treatments, the most commonly suggested solution components were increasing the number of licensed independent practitioners and creating additional space.

### Juncture 3: SUD care transitions

A total of 112 respondents reported on delays for the six subcategories on SUD care transitions (Table I-72). Delays in transitioning patients to residential treatment were endorsed much more frequently than any other transition in care. The proportion of respondents who said that there were frequent delays at their institutions are shown:

From primary care (excluding CBOCs) to outpatient specialty SUD care	4%
From general mental health to residential SUD care	31%
From Emergency Department to outpatient specialty SUD care	3%
From Emergency Department to inpatient detox	5%
From ambulatory detox to residential SUD treatment	37%
From CBOCs (all sizes) to specialty residential SUD care at your local health care system	31%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Tables I-73 to I-78 describe the responses in detail. Responses shown here (N = 52) for “transitioning patients from general mental health to residential SUD care” were typical: The most frequently cited as “critically important” or “very important” were as follows:

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

Create additional space for patient care	67%
Increase the number of licensed independent practitioners	63%
Increase the number of other personnel	56%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	38%
Improve personnel supervision, management, or incentives	31%
Some other solution(s)	27%
Improve information technology	21%
Change “central office policies” that affect workflow and efficiency	21%
Implement or increase the availability of telehealth services	19%
Increase weekend and evening availability of services	19%

We note that for all three of these SUD care transitions, creating additional space, increasing the number of licensed independent practitioners, and increasing the number of other personnel were the most commonly suggested solution components.

### Issues Affecting Provider and System Efficiency

A total of 113 respondents reported on the negative impact of a number of issues, ranging from providers performing clinical duties that could be performed by individuals with less training to administrative requirements, on provider and system efficiency (Table I-79). The following issues were most frequently identified as “a fair amount” or “a lot”:

Patient no-show rates	66%
Insufficient clinical/administrative support staff	65%
Providers performing administrative activities that could be performed by others	65%
Too many administrative requirements	57%
Inadequate scheduling system and policies	51%
Unnecessary documentation requirements or inefficient CPRS interface	50%
Providers performing clinical activities that could be performed by individuals with less training	36%
Poor patient flow management (room/bed turnover, appointments)	26%

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Residency training/teaching requirements

12%

### **Recruitment and Retention**

The SUD staff categories are similar to those of PTSD, with the addition of providers specializing in opioid disorder treatment (buprenorphine), social workers and psychologists. Also important for continuity of care in this population are schedulers.

One hundred and thirteen respondents reported problems recruiting or retaining a given staff position. The percentage of respondents reporting barriers for the given staff category are calculated from the subset answering ‘yes’ to problems recruiting/retaining.

Prescribing mental health professionals (76 percent) and prescribing providers with X-waivers for office-based buprenorphine treatment (58 percent) were the most commonly reported staff categories for which respondents reported difficulty recruiting or hiring (Table I-80).

Psychologists and nurses or physician assistants with specializations in mental health were close behind with 47 percent and 49 percent reporting difficulties in hiring/recruiting these staff positions. For both of these positions, the top recruitment barrier reported was non-competitive wages (57 and 55, respectively) (Table I-81). The second most common reason for both staff categories was lack of qualified applicants (35 and 44 percent, respectively).

Prescribing mental health providers were the main staff category that respondents reported problems in retaining, with 52 percent reporting difficulties (Table I-82). Less than 35 percent of respondents reported having difficulty retaining the rest of the mental health professionals. The top barriers to retaining the prescribing mental health providers were dissatisfaction with pay (51 percent) and dissatisfaction with workload (29 percent) (Table I-83).

### **Free-text comments**

Respondents offered comments/suggestions on issues affecting delays in access to SUD care and on matters related to provider and system efficiency.

First, respondents reported that they did not have enough clinical staff and support staff to efficiently serve Veterans. In particular, they noted the need for more psychiatrists and support staff to work with the psychiatrists. “[I] simply need additional psychiatrists; numbers are critically low with [my] two suboxone-qualified psychiatrists on deployment or indefinite leave. A primary care provider will appropriately have three support staff[:]; a psychiatrist is expected to work with a fraction of a nurse and a fraction of a scheduler.” “[We] require an addiction psychiatrist and another nurse practitioner who could do the physical screening.”

The lack of providers able to prescribe buprenorphine/Suboxone was frequently mentioned: “[We need] a new addiction psychiatrist to see Suboxone patients.” “We need to pay Suboxone providers more.” “We have limited Suboxone providers on staff.” “We need buprenorphine providers.” Other providers were also needed. As one respondent noted “I do not have enough providers to offer this service without fatiguing my existing providers.” Another respondent mentioned “Staffing at CBOCs is a particular problem.”

The lack of residential treatment was identified frequently as a concern.

## Assessment B (Health Care Capabilities)

---

There is no available VA residential care in [name of state]. Often there are lengthy application processes and complicated travel arrangements. There is no centralized way to know about wait times.

The process of referring to SUD residential care at other facilities remains problematic.

We need an increase in [residential] beds. We have 20 beds with a waitlist that fluctuates between 2-3 months.

Our beds are full on a consistent basis . . . there is no healthy environment during the wait time to residential.

There are long waits to transfer Veterans [to residential treatment.] Sometimes we are told that our Veterans cannot access the desired programs because they have too long of a waiting time for their own residents.

Referrals can take months.

Respondents also reported needing additional support staff to schedule patients who were waiting for appointments and to help make reminder calls, potentially preventing common no-shows for appointments in this population. Respondents felt that having support staff available to provide such services would free clinical staff from these administrative burdens.

The SUD clinician handles scheduling...there aren't enough administrative staff.

Understaffing is the biggest problem.

Ancillary staff were also viewed as essential. "Specify staffing models for different levels of care based on ASAM [American Society of Addiction Medicine] criteria to include designated staffing for ancillary/support services such as gym, recreation therapy, occupational therapy, vocational rehab. Ancillary services are critical to reconditional the limbic system/ leisure time activity and reduce relapse risks."

Telehealth had the potential to enhance access:

Telehealth from home would improve PT [patient] access and outcomes but VA would need to supply iPad and needed equipment. Standardized biofeedback equipment such as apps and finder monitors which are used on personal cell phones [would need to] be funded and made available to Veterans for mood regulation.

Respondents also identified lack of space as a significant issue: "Space is a critical need at all CBOCs." Another observed that due to the lack of space, they have "created offices on what used to be porch space just to make room for more providers." And "...group space is important for ability to do additional group therapies."

Respondents also commented on their experiences in referring patients to purchased care in the community or to other VISNS. Many respondents thought the current referral processes, which they saw as long and cumbersome, could be made more efficient: "Fee-basis approval can be a slow process as there is limited staff to process consults and limited programs in the community that offer this service."

Quality of purchased care was also a concern. A few respondents reported the need to find ways to offer Veterans services within the facility or a nearby VISN because of their concerns with the quality of care at community-based organizations and the lack of VA staff time and

resources to coordinate and follow care of a Veteran in purchased care. One respondent said “I have concerns about the standard of care at local methadone clinics and some ambiguity about how responsible VA staff are for care at outsourced private clinic.” “I have been disappointed with the quality of care in the community, yet I am responsible.” Another felt that Veterans wanted “improvement to occur in VA and not contracted to some programs that have poor environment for recovery.”

Several respondents reported that community-based organizations needed more incentives to treat Veterans and that they needed to be paid in a more timely manner. One respondent said “our payment rate is low to these fee-basis providers such that they are not eager for our business.” Lack of financial incentives may be a barrier to needed treatment: “Community Fee-Base programs feel that VAs are not paying enough vs Medicaid rates.” Supply of community-based providers was also highlighted as a potential barrier to access: “VA needs to market and recruit more Non-VA Care agencies in some areas (for example, Methadone/Suboxone) as there is far more need and not enough services available.”

The final issue respondents most frequently commented on was the need to have an updated scheduling software program. Respondents characterized the current system as “antiquated,” “archaic,” “ancient,” and “arduous.” They observed that “at many CBOC sites, CPRS bandwidth is severely limited and [there is] very slow computer responsiveness.” The system was seen as inefficient and error-prone. CPRS documenting was reported as cumbersome and time-consuming.

### **Conclusion**

While delays in accessing outpatient SUD treatment services within the respondent’s local health care system were reported infrequently, many more respondents reported delays when trying to access either residential treatment, treatment at another administrative parent, or fee-basis or contracted care. Access to residential treatment or medication-assisted treatment for opioid dependence, whether for buprenorphine or methadone, was noted as a particular problem; residential treatment because of the lack of beds and space, and medication assisted treatment because of the lack of providers. By contrast, apart from within CBOCs, delays in access to pharmacotherapy for alcoholism were not reported by many respondents. The most commonly cited staff recruitment and retention problem were for prescribing mental health providers.

### **1.3.4 Appendix B.3.4 Traumatic Brain Injury**

#### ***Clinical Background***

While many Veterans with who carry a TBI diagnosis sustained their injuries during deployment, a substantial number relate to other trauma such as motor vehicle accidents. TBI services at VA are referred to as “Polytrauma” in recognition of the fact that severe traumatic brain injuries rarely occur in isolation (they are commonly associated with extremity injuries, lung injuries, etc.). VA’s organizational structure for the care of Polytrauma patients is outlined in the Polytrauma System of Care handbook [VHA Handbook 1172.01].

VA defines several levels of Polytrauma services. Nationwide, there are five Polytrauma Rehabilitation Centers which focus on treating patients with severe TBI in the immediate aftermath of the injury. The next level is the Polytrauma Network Site which serves as the regional TBI referral center; there is at least one Polytrauma Network Site per VISN (VISN 8 and 17 each have two). Finally, the Polytrauma support clinic team at most large VAMCs organizes local TBI care and helps facilitate the comprehensive TBI evaluation for patients who screen positive (discussed below).

TBI can be categorized as mild or severe, recent or chronic. Patients with severe and recent TBI often enter the system (either via the DoD health system if the injury is service-related, or otherwise) at a Polytrauma Rehabilitation Center, and then are referred to the Polytrauma Network Site closest to home for ongoing care. Mild TBI, on the other hand, is often diagnosed long after the injury. Screening for TBI is mandatory for all new VA enrollees who separated from service after September 11, 2001, and takes place via a “clinical reminder” during their first clinical encounter. Patients who “screen positive” are referred for an extensive “comprehensive TBI evaluation.” Depending upon the results of that evaluation, patients may be referred for further studies (for example, sleep studies, neuropsychiatric testing). Depending upon the results of the initial comprehensive TBI evaluation and those tests, a care plan is developed and implemented locally or at a regional center as necessary.

TBI and PTSD are closely intertwined conditions as to some extent they share a common etiology, and as neuropsychiatric symptoms are common to both. One unique feature of TBI is that the disease itself can interfere with treatment for it: Patients with cognitive disabilities are more likely to be no-shows to appointments, for example.

### ***Survey Results***

There were between 107 respondents for questions regarding TBI. Rates of “not applicable” responses varied substantially across sub-questions. Please see Table I-2 for details of responses and response rates.

### **Delays**

Respondents were asked about delays at three care junctures after screening: (1) Comprehensive TBI evaluation, (2) Additional assessments after the comprehensive TBI evaluation, (3) Ongoing TBI care. Categories were further subdivided into specific services.

Those who reported delays were asked to formulate a solution and to rate the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) of their solutions.

### **Juncture 1: Comprehensive TBI evaluation after a positive screening test**

Respondents were asked where patients who screened positive for possible TBI symptoms were typically sent for a comprehensive TBI evaluation (Table I-84). The most common venues were reported to be as follows: Interdisciplinary TBI clinic within local health care system, physical medicine & rehabilitation clinic, and neurology clinic. As indicated in the comments section, several respondents noted that the interdisciplinary TBI clinic exists within the physical medicine & rehabilitation clinic at their institution. One respondent reported that the



## Assessment B (Health Care Capabilities)

---

comprehensive TBI evaluation occurs at CBOCs via telemedicine led by an interdisciplinary TBI team. Approximately 20 percent of respondents reported frequent delays (Table I-85).

Components of a solution to delays in obtaining comprehensive TBI evaluation that were most frequently cited as critically important or very important were as follows (Table I-86):

Increase the number of licensed independent practitioners	52%
Increase the number of licensed independent practitioners	52%
Improve information technology	48%
Increase the number of other personnel	39%
Change “central office policies” that affect workflow and efficiency	38%
Implement or increase the availability of telehealth services	34%
Some other solution(s)	29%
Improve personnel supervision, management, or incentives	27%
Create additional space for patient care	25%
Increase weekend and evening availability of services	13%
Acquire and/or improve availability of equipment	11%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	11%

### Juncture 2: Delays in obtaining additional assessments after the comprehensive TBI evaluation

Table I-87 describes reported delays in the following services used in the next stage of assessment after the comprehensive TBI evaluation: Magnetic resonance imaging, comprehensive sleep evaluation, neuropsychiatry evaluation, case management services, mental health evaluation, neuro-optometry/ophthalmology testing, hearing assessment, balance and vestibular testing, physical therapy evaluation, and occupational therapy evaluation. Comprehensive sleep evaluation and neuropsychiatric evaluation had the most reports of frequent delays. The proportions of respondents who reported frequent delays are as follows:

Magnetic resonance imaging	20%
Comprehensive sleep evaluation	35%
Neuropsych evaluation	27%

## Assessment B (Health Care Capabilities)

---

Case management services	8%
Mental health evaluation	16%
Neuro-optometry/ ophthalmology testing	18%
Hearing assessment	14%
Balance and vestibular testing	11%
Physical therapy evaluation	13%
Occupational therapy evaluation	9%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Tables I-88 to I-96 describe the responses in detail. Responses shown here for “Comprehensive sleep evaluation” were typical (proportions of respondents who answered either “critically important” or “very important” are shown):

Create additional space for patient care	45%
Increase the number of licensed independent practitioners	59%
Increase the number of other personnel	44%
Acquire and/or improve availability of equipment	39%
Implement or increase the availability of telehealth services	15%
Improve information technology	15%
Change “central office policies” that affect workflow and efficiency	10%
Improve personnel supervision, management, or incentives	10%
Increase weekend and evening availability of services	18%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	29%
Some other solution(s).	28%

### Juncture 3: Ongoing TBI care

Approximately 30 percent of respondents reported that their local system was a Polytrauma Network Site. Of the 73 who said that they were not, 12 percent said that most TBI patients were referred out to the regional Polytrauma Network Site, while 88 percent said that most TBI care occurred at their own facility. (Table I-98)

## Assessment B (Health Care Capabilities)

---

We asked about the following services for ongoing TBI care: Ongoing care by a TBI specialist at your facility, ongoing care at a regional Polytrauma Network Site, neuropsychiatric therapy, other mental health therapy, pain clinic for refractory symptoms, sleep clinic follow-up for refractory symptoms, physical therapy, occupational therapy, speech therapy, and vocational rehabilitation. Reports of frequent delays were somewhat more common for care at this juncture as compared with assessment after the comprehensive TBI evaluation. The services with the most respondents reporting delays were pain clinic and sleep clinic (about one third of respondents for each said that there were frequent delays). Notably, only 20 percent said that there were frequent delays in ongoing neuropsychiatric therapy, and only 16 percent identified frequent delays in other mental health therapy. It is not clear whether respondents took this question to refer to the initial appointment for ongoing therapy, or to access to ongoing care at regular intervals. The proportions of respondents who reported frequent delays are as follows:

Ongoing care by a TBI specialist at your facility	14%
Ongoing care at a regional Polytrauma Network Site	11%
Neuropsych therapy	20%
Other mental health therapy	16%
Pain clinic for refractory symptoms	34%
Sleep clinic follow-up for refractory symptoms	34%
Physical therapy	12%
Occupational therapy	7%
Speech therapy	11%
Vocational rehabilitation	15%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Tables I-100 to I-107 describe the responses in detail. Responses shown here for “Treatment from a pain clinic for refractory symptoms” were typical (proportions of respondents who answered either “critically important” or “very important” are shown):

Increase the number of licensed independent practitioners	84%
Create additional space for patient care	62%
Increase the number of other personnel	56%
Improve information technology	38%
Improve personnel supervision, management, or incentives	29%
Acquire and/or improve availability of equipment	28%
Change “central office policies” that affect workflow and efficiency	26%

## Assessment B (Health Care Capabilities)

---

Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	25%
Increase weekend and evening availability of services	23%
Some other solution(s)	18%
Implement or increase the availability of telehealth services.	17%

### Issues Affecting Provider and System Efficiency

A total of 106 respondents reported the negative impact on provider and system efficiency from issues such as providers performing clinical duties that could be performed by individuals with less training or from administrative requirements, (Table I-108). The following issues were most frequently identified as “a fair amount” or “a lot”:

Patient no-show rates	71%
Inadequate scheduling system and policies	63%
Insufficient clinical/administrative support staff	59%
Unnecessary documentation requirements or inefficient CPRS interface	58%
Providers performing administrative activities that could be performed by others	57%
Too many administrative requirements	56%
Inadequate physical space (for example, exam rooms) or equipment	38%
Providers performing clinical activities that could be performed by individuals with less training	29%
Poor patient flow management (room/bed turnover, appointments)	22%
Residency training/teaching requirements	5%

### Recruitment and Retention

We asked about recruitment (Tables I-109 and I-110) and retention (Tables I-111 and I-112) of a variety of physician specialists, mental health professionals, and therapists involved in the care of TBI patients.

In most cases, about one-half of respondents reported problems with recruitment; substantially fewer reported problems with retention. Excluding those who answered “NA,” about one-half reported problems recruiting most personnel types. Less than one-third reported problems with personnel retention.

Noncompetitive wages and dissatisfaction with pay were far more frequently cited than other reasons for problems with recruitment and retention, respectively.

### ***Free-text comments***

Respondents offered additional observations about delays, staffing, efficiency, and Central Office policies, among other issues.

Respondents felt that some delays were caused by Veterans themselves

Veterans frequently cancel or no-show and when the appointments are re-scheduled per the Veterans request it often gives the appearance of delay on the part of the facility.

There is a high no-show rate (traditionally almost 50 percent, improved to 33 percent d/t overbooks, not because patients are showing up more frequently!!)

Shortages of clinical and support staff was a prominent concern as was concern about insufficient space for existing staff to provide care.

Our facility receives approximately 100 consults a month with only 1.5 FTE provider(s) to see those requiring a CTBIE [comprehensive TBI evaluation]

We are dealing with a shortage of providers, both physicians and mid-level providers. There is a shortage of nursing personnel, both RN [registered nurse] and LPN [licensed practical nurse]. We have a critical shortage of physical space, not enough exam rooms to the point of inhibiting productivity. Telemedicine has increased our ability to reach rural areas, and this should be expanded. Providers other than neurologists and psychiatrists are capable of performing the CTBIE [comprehensive TBI evaluation]. We are currently doing this; otherwise we would not be capable of keeping up with the demand.

Lots of funding for Polytrauma site- those funds need to be shared with Polytrauma Support Clinic Sites as that is where the bulk of follow up and long term care resides.

Respondents had varied perspectives on the accessibility and utility of information in a Veteran's medical record.

The lack of medical records from DoD does not delay or provide the Second Level TBI Evaluation. We always provide the evaluation regardless of records from DoD.

This is a trick question. Remote data allows you to access DoD records from CPRS. However, those records are rarely relevant to the evaluation. They are often VA records that have been transferred into the DoD database, and almost never contain information about injuries that happened in theatre or that involved medical care while on Active Duty that is associated with the reported TBI.

I never see the inpatient records from Walter Reed, Landstuhl or Iraq or Afghanistan. I sometimes see the outpatient records from remote facilities in Iraq or Afghanistan, but they are few and far between. I \*never\* have access to things like sleep studies or the images from studies such as CT or MRI and usually have to re-image anything that I want to look at.

Respondents did report frequent delays but thought measuring delay in obtaining a new visit did not capture true access to mental health care, for which effectiveness would be a more appropriate measure.

We are capacity constrained in mental health due to the number of providers we have and the demands for services. We can see patients quickly, but then they may have a long wait to be seen again. We might be able to be more effective if we see the same patient more often, but that results in delays in seeing others. As delay is what is being measured, not effectiveness (a tough measure), we end up with many patients being seen, but not very effectively.

At this juncture, this level 1A hospital has two 0.5 psychologists who treat PTSD. This is far less than prior to 911. This is beyond unacceptable.

Delays in neuropsychiatric assessment sometimes as long as 4 months

Many respondents voiced frustration with the CPRS tool for the comprehensive TBI evaluation, and for Central Office policies they viewed as not focused on patient care.

Many CO [Central Office] directives do not address the real need of having the ability to schedule and contact Veterans more efficiently. Wait times are arbitrary and rarely reflect clinical need or community standards.

Many Veterans that are screened for TBI are many years past the initial incident. It is important to address their clinical needs but the required templates are not necessary for many of the evaluations.

VA is run, to quote a director, so as “to control the doctors.” You cannot run a health care system against the doctors. All the problems mentioned above derive fundamentally from the desire to by CO [Central Office] to control the system not let professionals do their job.

We have a doctor and nurse doing a great deal of clerical work and much of the documentation requirements do not feel meaningful to the actual care of the patient.

Delay due to staffing issue and lack of leadership support to address this issue in hiring appropriate personnel.

The TBI second level screening tool in CPRS is difficult to use, frequently does not work and is very slow. While it may allow [VA Central Office] to collect data, it adds nothing to clinical care for the Veteran.

The TBI screening program is flawed and has resulted in too many Veterans being diagnosed with TBI based on limited info. The need to complete Mayo-Portland evaluations for mild TBI patients is not helpful.

No show rates, clerical staff, and the ridiculous CPRS/VISTA interface are interconnected problems.

### **Conclusion**

VA has a well-developed system of care in place for patients with TBI. Except for the military, it is likely unrivaled in the depth of expertise available system-wide, or in the immediate care of the most severely injured patients. Access to care for those with less severe or less recent injuries is somewhat less clear.

Numerical survey results tell a somewhat different story than do the accompanying comments. The former suggests that at a majority of facilities, delays experienced by TBI patients at any care juncture are relatively uncommon. Moreover, it is suggested that many apparent delays are actually precipitated by patient no-shows for care (presumably in part related to cognitive deficits related to injury).

The comments suggest greater problems with access, and particularly that the system is responding to the access measures that are being audited, such that true problems may be understated. Neuropsychiatric evaluations and ongoing mental health care of any kind appear particularly problematic. It is possible that the comments give disproportionate voice to an unrepresentative sample of respondents. It is also possible that survey questions regarding “delays in ongoing care” were interpreted according to the letter of our instructions (for example, if no adverse outcome, and in keeping with VA/DoD guidelines, then no delay was reported).

Transfer of information between the DoD health care system and a VA Polytrauma Rehabilitation Center is generally done via “warm handoff” whereby pertinent medical history is discussed between providers at the two institutions. For less acute or less serious cases, survey evidence suggests that DoD records are often not deemed particularly relevant, nor are they routinely available (as they relate to the injury in questions or care for it); in short, there does not appear to be a perceived problem with regard to information transfer.

Comments also reflect widespread dissatisfaction with CPRS screening and evaluation tools for TBI, and with VA Central Office policy that is seen by some as focused on data collection at the expense of patient care.

### 1.3.5 Appendix B.3.5 Acute Coronary Syndromes

#### *Clinical Background*

The term “acute coronary syndromes” describes a constellation of signs and symptoms of myocardial ischemia or infarction. Acute coronary syndromes is a spectrum of disease ranging from “unstable angina” to “non-ST elevation myocardial infarction” to ST elevation myocardial infarction (STEMI). Patients seen in the emergency department for symptoms (typically chest pain) that might or might not be caused by acute coronary syndromes are commonly included in discussions of acute coronary syndromes care, and we do so here.

Acute coronary syndromes is an emergent condition where outcome depends upon timely diagnosis and treatment. Therefore, patients with compatible symptoms are told to call 911, and ambulance protocols usually suggest transport to the emergency department of the nearest appropriately equipped hospital. In some 911 systems, ambulances are equipped to perform 12-lead EKGs and will divert STEMI (“heart attack”) patients to regional centers equipped to perform emergent coronary interventions. A substantial proportion of acute coronary syndromes patients arrives via “self-transport” and do not come by ambulance.

#### *STEMI*

In the emergency department, if the EKG suggests STEMI, then a strategy to re-open the obstructed coronary artery must be undertaken immediately. Reperfusion can be achieved in two ways: via a percutaneous coronary intervention or via a “clot-dissolving” thrombolytic drug such as Tissue Plasminogen Activator. Outcomes are better with the percutaneous coronary intervention strategy; thrombolytics are only used if transport time to a percutaneous coronary intervention capable hospital would be prohibitive. However treated, STEMI patients are admitted to a coronary care unit, where they are treated and monitored for life-threatening complications.

### *Acute coronary syndromes other than STEMI*

If STEMI is excluded then patients are typically admitted either to a short-stay observation unit or an inpatient telemetry unit, depending on the probability that symptoms are caused by myocardial ischemia and on the risk of life-threatening complications. Acute coronary syndromes are diagnosed or excluded on the basis of EKGs, laboratory tests, and sometimes “non-invasive” evaluation of the coronary arteries. If acute coronary syndromes are diagnosed (or if it is felt to be probable), then the next step is diagnostic cardiac catheterization (also called coronary angiography). Patients found on catheterization to have an unstable coronary artery lesion usually will go on to an interventional procedure (that is, the placement of an intra-coronary stent).

### *Post-acute care (all acute coronary syndromes patients)*

Patients found to have other coronary artery lesions (besides the one that caused acute coronary syndromes) may be referred for elective PCI or coronary artery bypass graft surgery. Whether or not that occurs, they are then typically followed at regular intervals in an outpatient cardiology clinic. Follow-up focuses on monitoring for symptoms of complications, medications to prevent blood clots in the coronary arteries, and on lowering the risk (through medications and behavioral interventions) of future acute coronary syndromes episodes. Once symptoms stabilize, a patient may be referred back to primary care for ongoing care.

## **Survey Results**

A total of 98 respondents answered one or more questions in this module, which contained questions about the frequency of delays, proposed solutions for improving delays, factors impacting provider and system efficiency, and questions about workforce recruitment and retention.

### **Delays**

Respondents were asked about delays at five care junctures: (1) Emergency department assessment of patients with “possible acute coronary syndromes,” (2) Inpatient assessment of patients with “possible acute coronary syndromes,” (3) Patients with STEMI, (4) Revascularization for inpatients who are symptomatically stable but who have acute coronary lesions, and (5) Post-discharge care. Categories were further subdivided into specific services (for example, cardiology consultation, echocardiography). Specifically, we asked respondents to “Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.”



For the services with the greatest frequency of delay (that is, the highest percentage of patients experiencing a delay), participants were asked to think of the most effective way to reduce the number of delays, and to rate the importance of various elements of a solution (for example, create additional space, increase the number of licensed independent practitioners).

#### Juncture 1: Emergency department assessment

The first set of questions focused on the emergency department assessment of patients with symptoms that might suggest acute coronary syndromes. Responses are detailed in Table I-113. We asked about delays in the following services or transitions: Completing the emergency department evaluation, transferring from the emergency department to a short-stay observation unit, to a telemetry unit, or to a CCU bed.

For each step in the emergency department assessment, most respondents said that delays were infrequent. Transfer from the emergency department to telemetry was the step for which the most respondents (22 percent) reported that delays occurred in more than 10 percent of patients. The proportions of respondents who reported frequent delays are as follows:

Completing the emergency department evaluation	6%
Transfer from the emergency department to a short-stay observation unit (that is, “chest pain unit”)	10%
Transfer from the emergency department to a telemetry bed	22%
Transfer from the emergency department to a CCU or ICU bed	12%

Respondents who identified delays in a particular service were asked to think about a solution, and to rank the importance of various “components of the proposed solution.” Tables I-114 to I-117 describe the responses in detail. Responses (N = 36) to “Transfer from the emergency department to a telemetry bed” are typical:

Create additional space for patient care	86%
Increase the number of other personnel	57%
Increase the number of licensed independent practitioners	43%
Increase weekend and evening availability of services	38%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	38%
Improve personnel supervision, management, or incentives	31%
Change “central office policies” that affect workflow and efficiency	26%

## Assessment B (Health Care Capabilities)

---

Acquire and/or improve availability of equipment	24%
Implement or increase the availability of telehealth services	6%

### Juncture 2: Inpatients admitted to rule out acute coronary syndromes

Regarding stable inpatients admitted to “rule out” acute coronary syndromes, we asked about delays in the following: Cardiology consultation, Echocardiography, Non-invasive coronary evaluation (for example, nuclear stress testing), On-site coronary angiography, Transfer to another VA health care system for coronary angiography, and Transfer to non-VA facility for coronary angiography (fee-basis or contracted care).

Delays in cardiology consultation and on-site coronary angiography were reported to be uncommon. A slightly larger number of respondents reported delays in transfer to an outside (non-VA) facility for coronary angiography, and for echocardiography, and non-invasive coronary testing. Transfer to a different VA facility appear to be a less common event (half reported “NA”) but more than one-third who answered said that frequent delays occurred. The proportions of respondents who reported frequent delays are as follows:

Cardiology consultation	6%
Echocardiography	13%
Non-invasive coronary evaluation (for example, nuclear stress testing)	19%
On-site coronary angiography	5%
Transfer to another VA health care system for coronary angiography	36%
Transfer to non-VA facility for coronary angiography (fee-basis or contracted care)	10%

Respondents who identified delays in a particular service were asked to think about a solution, and to rank the importance of various “components of the proposed solution.” Tables I-119 to I-124 describe the responses in detail. Responses (N = 35) for echocardiography were typical: The most frequently cited as “critically important” or “very important” were as follows:

Increase the number of other personnel	70%
Acquire and/or improve availability of equipment	46%
Create additional space for patient care	43%
Change “central office policies” that affect workflow and efficiency	41%
Increase the number of licensed independent practitioners	37%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer	37%

## Assessment B (Health Care Capabilities)

---

to care in the community

Increase weekend and evening availability of services	29%
---	-----

Improve personnel supervision, management, or incentives	23%
--	-----

Implement or increase the availability of telehealth services	9%
---	----

### Juncture 3: Patients with ST-Segment Elevation MI

Delays in caring for patients with STEMI are of particular concern because there is a well-documented inverse relationship between time-to-treatment and chance of death or heart damage. With regard to management of STEMI, we asked about the following: Emergency department activation of STEMI protocol, Primary PCI at an on-site catheterization laboratory, Primary percutaneous coronary intervention at a different VA facility (via transfer), Primary percutaneous coronary intervention at a non-VA facility (via transfer), and Thrombolytic therapy.

For these services, one-half to three-quarters of respondents reported that there are no delays for any patients, and 80–90 percent said that delays occurred for 10 percent of patients or fewer. Of note, a majority responded “NA” with regard to “Primary percutaneous coronary intervention at a different VA facility,” and “Thrombolytic therapy,” suggesting that use of these services may not be widespread. The proportions of respondents who reported frequent delays are as follows:

Emergency department activation of STEMI protocol	12%
---	-----

Emergency department activation of STEMI protocol	12%
---	-----

Primary percutaneous coronary intervention at an on-site catheterization laboratory	12%
---	-----

Primary percutaneous coronary intervention at a different VA facility (via transfer)	19%
--	-----

Primary percutaneous coronary intervention at a non-VA facility (via transfer)	13%
--	-----

Thrombolytic therapy	0%
----------------------	----

Respondents who identified delays were asked to think about a solution, and to rank the importance of various “components of the proposed solution.” Tables I-125–I-129 describe the responses in detail. Responses (N = 34) for “Emergency Department Activation of STEMI protocol” were typical: The most frequently cited as “critically important” or “very important” were as follows:

Increase the number of other personnel (for example, nursing, technicians, pharmacists, clerical staff)	48%
---	-----

Increase the number of other personnel (for example,	48%
--	-----

## Assessment B (Health Care Capabilities)

---

nursing, technicians, pharmacists, clerical staff)	
Increase the number of licensed independent practitioners (for example, physicians, nurse practitioners, psychologists)	44%
Create additional space for patient care (for example, more exam rooms, procedure rooms, inpatient beds)	38%
Some other solution(s)	35%
Improve personnel supervision, management, or incentives	33%
Increase weekend and evening availability of services	32%
Change “central office policies” that affect workflow and efficiency (for example, rules governing documentation or how quickly certain services must be provided)	26%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	26%
Acquire and/or improve availability of equipment	18%
Implement or increase the availability of telehealth services	6%

### Juncture 4: Revascularization for inpatients who are symptomatically stable but who have acute coronary lesions

We asked about delays in obtaining: On-site percutaneous coronary intervention, Transfer to another VA facility for percutaneous coronary intervention, Transfer to a non-VA facility for percutaneous coronary intervention, On-site coronary artery bypass graft surgery, Transfer to another VA facility for coronary artery bypass graft surgery, and Transfer to a non-VA facility for coronary artery bypass graft surgery.

While more than half of respondents reported infrequent delays in each of these services, a substantial minority (35–45 percent) reported more frequent delays in transfer to another VAMC for percutaneous coronary intervention, in on-site coronary artery bypass graft surgery, and transfer to another VAMC facility for coronary artery bypass graft surgery.

Reports of delays in transfer to non-VA facilities for non-emergent percutaneous coronary intervention were notably uncommon (3 percent of respondents reported that delays occur more than 10 percent of the time). The proportions of respondents who reported frequent delays are as follows:

On-site percutaneous coronary intervention	6%
Transfer to another VA facility for percutaneous coronary intervention	26%
Transfer to a non-VA facility for percutaneous coronary	3%

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

intervention

On-site coronary artery bypass graft surgery	48%
--	-----

Transfer to another VA facility for coronary artery bypass graft surgery	46%
--	-----

Transfer to a non-VA facility for coronary artery bypass graft surgery	9%
--	----

Respondents who identified delays were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Tables I-131–I-136 describe the responses in detail. Notably, the number of responses for many of these steps was low, reflecting, probably the relatively small number of patients who need these services (and likely their uneven distribution throughout the VA system). Responses shown here for “coronary artery bypass graft surgery on-site” were typical: The most frequently cited as “critically important” or “very important” were as follows:

Increase the number of licensed independent practitioners	81%
---	-----

Increase the number of other personnel	71%
--	-----

Create additional space for patient care	43%
--	-----

Increase weekend and evening availability of services	33%
---	-----

Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	33%
--	-----

Acquire and/or improve availability of equipment	29%
--	-----

Improve personnel supervision, management, or incentives	24%
--	-----

Change “central office policies” that affect workflow and efficiency	19%
--	-----

Implement or increase the availability of telehealth services	19%
---	-----

### Juncture 5: Transfer of acute coronary syndromes patients from an outside hospital to a VAMC

Here we asked about transfers of (symptomatically stable) Veterans either from other VAMCs without required acute coronary syndromes services, or from non-VA hospitals (Table I-137). One quarter of respondents answered “not applicable,” expected since many VA systems would be transferring patients out, not in (since they lack services). Those who answered the question said that more than half of all patients who needed to be transferred to their facility experienced delays.

Transferring patients from an outside hospital to your hospital for further evaluation	44%
--	-----

## Assessment B (Health Care Capabilities)

---

Respondents who identified delays were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Responses were as follows (see also Table I-138). Of note, free-text comments suggest that “additional space” refers to inpatient beds, and that “some other solution” may relates to changes in organizational culture or incentive structure to encourage the acceptance of transfers. The most frequently cited as “critically important” or “very important” were as follows:

Create additional space for patient care (for example, more exam rooms, procedure rooms, inpatient beds)	87%
Increase the number of other personnel (for example, nursing, technicians, pharmacists, clerical staff)	56%
Some other solution(s)	53%
Increase the number of licensed independent practitioners (for example, physicians, nurse practitioners, psychologists)	49%
Improve personnel supervision, management, or incentives	37%
Increase weekend and evening availability of services	35%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	34%
Acquire and/or improve availability of equipment	30%
Improve information technology (for example, scheduling system, electronic health record)	24%
Change “central office policies” that affect workflow and efficiency (for example, rules governing documentation or how quickly certain services must be provided)	24%

### Juncture 6: Post-discharge care

With regard to care of acute coronary syndromes patients after hospital discharge, we asked about delays in the following: Follow-up cardiology clinic appointments (percutaneous coronary intervention), Non-invasive coronary evaluation (for example, nuclear stress testing) as outpatients, Initial cardiothoracic surgery appointment for patients referred for possible elective coronary artery bypass graft surgery, Pre-operative testing (for example, carotid ultrasound) for patients under consideration for elective coronary artery bypass graft surgery, Elective coronary artery bypass graft surgery, Elective (or otherwise non-emergent) angiography or percutaneous coronary intervention (Table I-139).

While a majority of respondents cited infrequent delays for each of these steps, 32 percent reported more frequent delays in elective coronary artery bypass graft surgery, 17 percent in non-invasive coronary evaluation, and 16 percent in obtaining follow-up cardiology clinic

## Assessment B (Health Care Capabilities)

---

appointments. The proportion of respondents who said that there were frequent delays at their institutions are shown:

Follow-up cardiology clinic appointments (percutaneous coronary intervention)	16%
Non-invasive coronary evaluation (for example, nuclear stress testing) as outpatients	17%
Initial cardiothoracic surgery appointment for patients referred for possible elective coronary artery bypass graft surgery	24%
Pre-operative testing (for example, carotid ultrasound) for patients under consideration for elective coronary artery bypass graft surgery	9%
Elective coronary artery bypass graft surgery	32%
Elective (or otherwise non-emergent) angiography or percutaneous coronary intervention	5%

Respondents who identified delays in services for post-discharge care were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Responses are given in tables I-140 to I-145. Responses for “follow-up cardiology clinic appointment” were typical and are given below: The most frequently cited as “critically important” or “very important” were as follows:

Increase the number of licensed independent practitioners	46%
Create additional space for patient care	39%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	36%
Improve personnel supervision, management, or incentives	32%
Increase the number of other personnel	32%
Increase weekend and evening availability of services	32%
Change “central office policies” that affect workflow and efficiency	25%
Acquire and/or improve availability of equipment	21%
Implement or increase the availability of telehealth services	14%

### Issues Affecting Provider and System Efficiency

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

Respondents for the module (N = 98) were asked to describe the degree to which various issues affected provider and system efficiency. Table I-146 describes the results. The most frequently cited as “critically important” or “very important” were as follows:

Insufficient clinical/administrative support staff	66%
Providers performing administrative activities that could be performed by others	61%
Too many administrative requirements	58%
Inadequate scheduling system and policies	53%
Inadequate number of staffed inpatient beds	48%
Unnecessary documentation requirements or inefficient CPRS interface	47%
Poor patient flow management (for example, bed turnover)	34%
Providers performing clinical activities that could be performed by others	33%
Inefficient processes related to outmoded or suboptimal physical infrastructure	32%
Patient no-show rates (for outpatient follow-up)	30%
Residency training/teaching requirements	21%
Delays in obtaining specialized supplies or devices	21%

### Recruitment and Retention

We asked about recruitment (Tables I-147 and I-148) and retention (Tables I-149 and I-150) for emergency physicians, cardiologists (various subspecialties), cardiothoracic surgeons, technicians, and specialized support staff. Ninety-eight percent of respondents answered the questions about recruiting and retaining staff, although a large proportion of responses were “not applicable,” presumably reflecting the fact that many local systems do not have the relevant service, and possibly also that because the number of staff is small at most facilities that do have them, turnover is infrequent.

For most workforce categories, about half of the respondents (excluding “NA”) said that there were recruitment difficulties. Notably, this proportion was somewhat lower for interventional cardiologists (approximately one third of respondents said that there were recruitment problems).

Substantially fewer respondents identified problems with workforce retention, as compared with recruitment. The specialist most frequently identified as having problems with both recruitment and retention were emergency physicians. It should be noted that the cardiology chief would not normally be involved in their recruiting or hiring (this is true for other personnel



types such as cardiothoracic surgeons), so the source of these perceptions might be questioned.

Non-competitive wages/ dissatisfaction with pay were by far the most common reasons cited for problems with recruitment and retention, respectively.

### ***Free-text comments***

Timeliness of STEMI care was mentioned by several respondents. At least one comment was congruent with the survey result that STEMI delays were rare, while others were not:

We usually get our STEMIs out in time and there are no issues with local acceptance.

If we have an STEMI after hours it will require transfer from VA to university which will take a minimum of one hour, usually more, to work out. We cannot staff a cath lab 24h, 7d a week.

This facility provides primary PCI [percutaneous coronary intervention] only during business hours if (single) cath lab is available. Delays in inter-hospital transfer night/weekends related to recognition and facile activation of STEMI system for transfer or thrombolytics + transfer. Need to work with community to permit transmission of first-contact ECGs and administrative authority to directly route patient to closest PCI center for optimal STEMI care without cost to patient.

Timeliness of elective coronary artery bypass graft surgery and transfer of a Veteran into VA from an outside VA (or non-VA) facility were discussed. Some of these touched on organizational culture as being part of the problem.

Delays in getting outpatient CABG [coronary artery bypass graft surgery] for patients after ACS [acute coronary syndromes] happen often, partially because the referral center surgeons insist on multiple consults by other services before seeing the patients. Also, I assume because of lack of OR [operating room]. Often patients wait for months to get outpatient CABG in the referral VA. Better communication between cardiologists at our VA and surgeons in referral VAs may help, and we can work on this on our own. VISN level cardiovascular meetings where the Chiefs of Cardiology or even all cardiologists/CT [cardiothoracic] surgeons get together to discuss pressing issues, would help A LOT.

If Central Office could incentivize our tertiary hospitals to take our patients, incorporate customer service reviews perhaps this could change. Our community hospitals are more accepting and easier to deal with.

Unlike the private sector there is not a “service mentality” in the transfer office. The transfer process is “unfriendly” to referring hospitals, typically they have to leave a message and get a call back, rather than having a transfer clerk consistently available to answer the phone directly. This is a problem both for referring physicians and in-house physicians trying to get a patient admitted.

Some comments alluded to a “domino effect” whereby bottlenecks at one hospital location or with one service can cause downstream problems with timely care:

We have enough medical provider staff- we could use a LMSW [Licensed Master Social Worker] to help us move people more quickly out of the UCC [urgent care center] so we

can care for our ACS [acute coronary syndromes] and other urgent patients more quickly.

Our single biggest deficiency is in availability of inpatient beds. Most often, but not always, the actual shortfall is in bed staffing (that is, nursing) and not in physical beds. This results in delays in transfer of patients from the emergency department to the floor, and creates further bottlenecks for the procedure areas. For example, in the Cardiac Cath lab patients often must be held in the Recovery area for additional hours due to lack of available telemetry beds, which pulls cath lab staff from other duties and affects procedure throughput.

Radiology needs additional personnel for staffing on nights and weekends when there is often only one X-ray tech for the entire building and services the ED [emergency department], ICU, and OR [operating room] simultaneously.

Comments regarding physical space primarily focused on the availability of ICU and telemetry beds. While some respondents made the distinction between the availability of physical beds versus staffed beds, others did not.

We have physical beds but not enough nurses to take care of patients; hence the wait time for inpatient beds. We cannot transfer ACS [acute coronary syndromes] patients (to our VA for cardiac cath) easily from outside hospitals or other VAs because of the bed situation

No physical beds.

One noted that problems with bed capacity are seasonal:

Our facility has too few inpatient beds for busy months of the year, for example, flu season.

Several comments suggested that VA may not be well-suited to care for many enrollees with acute, time-sensitive conditions, by virtue of the fact that non-VA resources are often much closer:

Our options for ACS [acute coronary syndromes] are to transfer patients locally (we have a local contract with a community medical center) or to send ~200 miles to [redacted]. The patients have to wait on average 2–3 days or longer for beds at those outside facilities. The VA preference is that we send within VA rather than the community for financial reasons. However, it is inappropriate for ACS [acute coronary syndromes] patients (even stable patients, chest pain free, with mild or no troponins) to wait 48 hrs.

Patients with chest pain should be evaluated in local ER and service should be provided (paid for) by VA. If patient requires admission, cath, etc., stabilize and transfer to VA. Currently services outside VA are not paid for unless patient is service connected. This means many patients attempted to drive long distances (hours) to a VAMC for ACS [acute coronary syndromes]. The result is substantial delay in treatment of ACS.

Depending on the urgency of the situation as determined by the Urgent Care physician, the patient is transferred to a local non-VA facility or (if very stable) to a VA hospital which is 90 to 120 miles away. Because VA must pay Medicare rates if admitted to a non-VA facility, there is emphasis on trying to admit to a VA facility if deemed safe. If

our clinic could work out a financial arrangement with a local inpatient facility, it would alleviate the need to transport long distances patients with potential unstable cardiac conditions.

Would be nice to have CABG [coronary artery bypass graft] surgery done locally rather than traveling to another state to get to a VA offering this service.

One respondent suggested at least for certain facets of cardiovascular care, Veterans prefer to stay within VA:

The vast majority of Veterans do not want to take advantage of fee-basis opportunities or the Veterans Choice Act. If the services can be offered at VA, they seem committed to staying within VA. So, it would be helpful to provide the infrastructure to help them do so.

Some comments on coronary artery bypass graft surgery alluded to perceived problems with training or quality. The need for trained emergency physicians rather than primary care providers to staff ERs was also mentioned.

The department of CT [cardiothoracic] surgery requires a substantial overall. Employ energetic, eager to work, and, most importantly, competent cardiac surgeons

Retire cardiac surgeons who are no longer able to provide state of the art operations and real on-call coverage

Several comments mentioned that low salaries caused hiring difficulties; others discussed the HR process.

VA is not competitive (salary) in hiring echo technicians. This results in delays in getting inpatient echocardiograms.

In Cardiology we have a shortfall in technologist positions -- primarily cath lab techs and echo techs. Technologist pay scales fall far below market in high cost of living areas, and we have continual problems attracting and retaining these critical personnel.

Pay for interventional or other cardiologists are much lower than market pay ranges

When hiring new staff for technical positions, such as echocardiography technician, it is important to test the technical skills of the people applying. With current HR [human resources] rules, it is difficult to do (if there are no local Veterans applying, then you have to consider Veteran applicants from across the country but nobody pays them to fly out for an in-person interview.

VA has become increasingly bureaucratic and inefficient in terms of hiring; this is affecting patient safety and care, and is also very expensive as increasing numbers of patients are sent out to community.

### **Conclusion**

This module reflects the opinions of the heads of cardiology at 98 local VA systems. They were asked about acute coronary syndromes, broadly defined, including the spectrum of illness ranging from symptoms that might be caused by myocardial ischemia to acute STEMI, and about the phases of care ranging from the initial emergency department presentation to post-hospitalization follow-up. Of the eight modules in the survey, this is the only one that focused on either an emergent condition or inpatient care.

One striking finding was that inadequate clinical (provider) personnel were rarely mentioned as a cause of inpatient delays. Problems reported were most frequently attributed to bed shortages and to organizational problems.

Delays in initial emergency department evaluation and STEMI care, the most time-sensitive and high-risk scenario covered here, were reported to be infrequent. Delays in admission of stable patients to inpatient beds were more common, attributed primarily to problems of bed capacity (whether physical beds or beds empty but unstaffed).

Remarkably, about half of respondents (excluding “NA” responses), when asked about transfers of (symptomatically stable) acute coronary syndromes patients into their facilities, said that more than 50 percent of such patients experienced clinically meaningful delays. These delays were attributed both to bed capacity problems and to a lack of incentive and a “lack of a service mentality” among certain administrators at the receiving facilities.

For the most part, these survey questions only addressed the care of those Veterans who made it to a VAMC for acute coronary syndromes care. As some respondents alluded to, however, many patients with emergent conditions such as this cannot or should not travel the extra distance to a VAMC if there is an appropriately equipped non-VA hospital that is closer. To the extent that some Veterans spend extra travel time when they should not, or are not covered when they are admitted to non-VA hospitals, problems with access to care for this patient population might not be fully reflected in this survey.

### 1.3.6 Appendix B.3.6 Colon Cancer

#### *Clinical Background*

Colon cancer is a leading cause of cancer and cancer-related deaths in the United States and among Veterans. It is one of the few cancers for which there is strong evidence that screening and timely follow-up to screening saves lives. Because of this, timely and appropriate screening, follow-up to screening, and treatment of patients who are diagnosed with colon cancer are areas of intense interest to VA. Moreover, the logistics of ensuring that a massive population (for example, every Veteran over 50) is screened without fail, and that a mechanism exists to enforce a zero tolerance policy for failure to follow-up on a positive screening test, would challenge even the most sophisticated health care organization. Colon cancer is therefore an ideal condition with which to illustrate the strengths and weaknesses of a variety of VA systems.

Clinical guidelines have evolved over time, and there are currently a number of screening mechanisms viewed by many to be equally effective, although they vary substantially in cost and patient convenience. Three screening mechanisms currently predominate: (1) An annual test for small amounts of blood in the stool, “fecal occult blood test,” (2) A flexible sigmoidoscopy examination every five years, and (3) a screening colonoscopy examination every 10 years. Colonoscopy has the advantage of being definitive—either a cancer or precancerous lesion is seen or it is not. Fecal testing is reliable if done correctly and tests are done annually, but a substantial number of patients who do not actually have colon cancer will have a positive test and will need to go on to colonoscopy anyway. Until recently fecal occult

blood testing was done via the “guaiac test,” which has been used for decades. More recently, an immunochemical test for fecal occult blood has been advocated by some as more effective, but it is more expensive.

Patients who go on to colonoscopy (either primarily or after a positive occult blood test) are biopsied if there are suspicious lesions. If a cancer diagnosis is made, then a variety of ancillary tests are performed and depending upon the stage and location, definitive treatment can include surgical excision (usually hemi-colectomy), and adjuvant chemotherapy or radiation therapy.

### ***Survey Results***

There were 109 respondents for the colon cancer module. Please see Table I-2 for details of responses and response rates.

Survey respondents were asked about three junctures in the care pathway: (1) Screening of asymptomatic patients, (2) Colonoscopy, whether for screening or other indications, and (3) Care for biopsy-proven colon cancer. Categories were further subdivided into specific services.

#### **Juncture 1: Screening**

We asked respondents to identify the screening methods were commonly used at their facilities. More than one response was allowed. In decreasing order of frequency, responses were: colonoscopy every 10 years (92 percent), fecal immunochemical testing (70 percent), standard stool guaiac (36 percent), flexible sigmoidoscopy every five years (17 percent), double contrast barium enema every five years (4 percent) (Table I-151).

Regarding availability of the fecal immunochemical test at their facility, 73 percent said that this was available at all locations, 10 percent at some but not all locations, and 17 percent said that fecal immunochemical testing was not available at their institution (Table I-152).

Respondents were asked whether CPRS clinical reminders for colon cancer are implemented. All respondents (100 percent) answering the question said that they were (Table I-153). Regarding CPRS “view alerts” for a positive fecal occult blood test: 45 percent of respondents said that a fecal occult blood test generates an alert which requires some sort of acknowledgement by the clinician, 32 percent said that it generates an alert which may be easily overlooked, and 22 percent said that positive fecal occult blood tests are automatically routed to gastroenterology (Table I-154).

#### **Juncture 2: Colonoscopy (for screening and other indications)**

Respondents were asked to estimate the average colonoscopy wait times at their facilities, for various indications. The median response was 30 days for colonoscopy for high risk patients or those with symptoms, iron deficiency anemia, or a positive fecal occult blood test, and 55 days for a screening colonoscopy for average-risk patients (Table I-155).

Delays in colonoscopy varied somewhat with the clinical indication. Frequent delays were most often reported for screening in average-risk patients (20 percent of respondents), and least often for routine follow-up to positive fecal occult blood test (Table I-156). The proportions of respondents who reported frequent delays are as follows:

## Assessment B (Health Care Capabilities)

---

Colonoscopy screening for average-risk patients	21%
Colonoscopy screening for high-risk patients (for example, strong family of colon cancer or personal history of inflammatory bowel disease)	13%
Colonoscopy for patients with positive fecal occult blood test	8%
Colonoscopy for patients with iron deficiency anemia	11%
Colonoscopy for patients with other symptoms or indications	13%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Table I-157 describes the responses in detail. Proportion of respondents indicting the solution to delays in colonoscopy is “critically” or “very important” are shown below for the 64 respondents:

Increase the number of licensed independent practitioners	78%
Increase the number of other personnel	67%
Create additional space for patient care	52%
Improve information technology	50%
Change “central office policies” that affect workflow and efficiency	48%
Some other solution(s)	45%
Acquire and/or improve availability of equipment	33%
Improve personnel supervision, management, or incentives	33%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	25%
Increase weekend and evening availability of services	9%
Implement or increase the availability of telehealth services	3%

### Juncture 3: Management of biopsy-proven colon cancer

We asked about the following services for patients already diagnosed with colon cancer: Initial evaluation by a surgeon, computerized tomography scan for staging, partial colectomy, chemotherapy, and radiation therapy (Table I-158). For each of these services, fewer than 10 respondents reported frequent delays. Possible solutions to reducing delays are therefore not discussed (Tables I-159–I-164).

### **Issues Affecting Provider and System Efficiency**

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

A total of 107 respondents reported on the negative impact of a number of issues, ranging from providers performing clinical duties that could be performed by individuals with less training to administrative requirements, on provider and system efficiency (Table I-165). The following issues were most frequently identified as “a fair amount” or “a lot”:

Insufficient clinical/administrative support staff	72%
Providers performing administrative activities that could be performed by others	71%
Inadequate scheduling system and policies (for example, hard to cancel or reschedule, coordinate)	65%
Patient no-show rates	64%
Unnecessary documentation requirements or inefficient CPRS interface	58%
Too many administrative requirements	56%
Providers performing clinical activities that could be performed by individuals with less training	50%
Poor patient flow management	39%
Residency training/teaching requirements	13%

### **Recruitment and Retention**

The colon cancer section asked about specialties associated with colon cancer care such as gastroenterologists, surgeons and oncologists, as well as support staff trained in oncology. One hundred six respondents answered the recruitment and retention questions. Two-thirds reported difficulties in hiring gastroenterologists. More than 90 percent of respondents said that non-competitive wages were the major barrier (Table I-167). A distant second was burdensome human resources process to actually hire someone (26 percent).

Nearly 38 percent of respondents reported problems retaining gastroenterologists, once they were hired (Table I-168). About two-thirds said this was due to dissatisfaction with pay (Table I-169). Of those facilities reporting problems in retaining gastroenterologists, 30 percent of respondents reported dissatisfaction with management support as the next most common barrier to retention.

### **Free-text comments**

Many respondents reported high demand for gastrointestinal services, exceeding the supply that their facility was capable of providing. In particular, the high rate of no-shows was highlighted as wasting physician time. As one respondent observed: “...physicians especially procedural physicians need nurses to follow up with patient labs, etc. and to remind and educate patients regarding their upcoming procedure appointments otherwise we have an increase in no show and cancellation rates.” According to another respondent, the “biggest problem is no shows and [appointments] cancelled by patient too late to move someone in.”

Some respondents mentioned the clinical reminders in VistA/CPRS to prompt physicians to order screening colonoscopies for their patients. However, several respondents felt that the documentation requirements associated with colorectal cancer screening and care were onerous and represented a significant barrier to access to care, as the workflow for a colonoscopy was similar to the workflow for surgery. They thought that physicians spent an excessive amount of time on documentation and paperwork: “A lot of time is spent by providers in administrative work, triaging consults etc. No training is given to providers to capture work load properly.”

One respondent observed that the burden of paperwork was a barrier to using new purchased-care programs effectively: “The non VA care department is overwhelmed by the demand created by the various new programs. As in all cases, every effort should be made to streamline paperwork.” “It takes longer to do the paper work than perform the procedure and MOST of the paper work is not value added.” Others felt that the electronic health record system was too clunky and should be streamlined for optimal care, adding that the potential for “pop-up fatigue” limits the effectiveness of reminders and alerts.

Staffing was a major concern. As one respondent telegraphed: “Desperately needed—GI physicians [gastroenterologists] and endoscopy nursing personnel; badly needed—more endoscopy rooms.” Multiple respondents suggested that the salaries offered by VA are too low to attract providers, who have the potential to make much more money in other care systems. “...The salary range for GI physicians [gastroenterologists] is still far lower than in the private sector. In addition, despite the increase recently in the salary caps, these increases will only be given to new hires. . . . This will mean that the seasoned staff including the department chiefs will be paid less than the freshman. “

Many respondents felt that more nurses and support staff, such as techs, were needed. “We are understaffed with respect to GI providers [gastroenterologists] and nurse/techs to run the rooms. We do not have sufficient Facilitators to schedule procedures, and we do not have enough Nurse Care Coordinators to manage the complex patients we do see.” Low salaries were also cited as a barrier to adequate staffing in these areas: “Nurse hiring and retention [are] problematic due to noncompetitive grades/salaries and long HR [human resources] delays.”

Respondents viewed increasing support staff as essential to increasing more physician services. The understaffing of VA administration and support personnel was seen as “a pervasive and longstanding VA problem.” Several respondents also decried a shortage of providers from other specialties, such as anesthesiology, radiology, and surgical oncology. The need for more space was also frequently mentioned. “Limited number of endo [endoscopy] rooms, lack of nursing support and delays in replacing equipment are major causes for delays.”

But multiple respondents commented on how the disconnect between one-size-fits-all requirements for obtaining appointments and clinical realities affected VA abilities to provide the right care at the right time. Several respondents observed that screening policies and metrics used to monitor quality of colorectal cancer care were not designed with input from clinicians and therefore do not reflect the most current evidence. As one articulated: “The central office policies need to be revised because obviously non-clinicians are making decisions



as to how quickly patients need to undergo procedures. The doubling time in the colon is ~5 years, therefore the average patient does not need to have a procedure performed within 30 days or even 60 days.”

Given these clinical facts, one respondent observed that a metric rewarding providers based on how many of their patients receive a colon cancer screening within 30 days creates unnecessary pressure to get low-risk patients in quickly for screening, diverting patient and provider attention from problems that actually require urgent attention. As one respondent commented, “a patient referred for routine screening colonoscopy because it has been 10 years since his last one should have ONE YEAR--365 days--to get his procedure done sometime in that calendar year.” In addition, the guidelines should be applied that “stop screening at age 75, so that 82 year-olds stop being referred for routine endoscopy and clogging the system.”

Respondents did not perceive purchased care as a necessarily promising option for expanding access and had concerns about the quality of care Veterans would receive outside VA: “To me [non-VA care] is the worst of all possible solutions. Our experience has been that we end up repeating studies due to poor quality of procedures performed resulting in waste of resources and what is worst delay in diagnosis and treatment. Furthermore, community resources are limited and waiting times are even longer than at VA. While we devote to high quality procedures; we end up offering substandard care in the community due to lack of capacity to cope with the demand.”

At least one respondent felt that more efficient processes within VA would have the effect of expanding access. “Space and personnel are key, but we could do many more procedures with existing structural resources if our processes were more efficient/streamlined. There are major organizational and regulatory (VA-specific) impediments to efficient care. Examples: (1) misaligned incentives between nurses/techs and physicians; (2) high nurse turnover; (3) high regulatory burden (that is, excessive time out requirements, lack of ability for non-physician consents, etc.); (4) antiquated scheduling system; (5) lack of operational data to guide process improvement. This being said, the patients in VA are MUCH more complicated than your normal community screening patient, and so non-VA benchmarks don’t apply.”

### **Conclusion**

Colon cancer screening is an excellent example of the degree to which practices vary across the VA system, even for something that would seem highly amenable to a standard nationwide protocol. Variation is not necessarily a problem—there is no universal consensus regarding the best screening method—and VA probably mirrors non-VA systems in this regard. However, insofar as colonoscopy demand appears to outstrip supply at many local VA systems, an argument might be made for a system-wide shift away from screening colonoscopy for average risk patients, as some respondents have indicated that their institutions have already done.

Questions about VA mechanisms to ensure that colon cancer screening takes place and that abnormal results receive timely follow-up touch upon two functions of the CPRS clinical information system that have been identified elsewhere in this survey and in other parts of the Assessment B report as widespread sources of provider dissatisfaction: “Clinical reminders” and “View alerts.” Clinical reminders were developed for tasks such as this—automatically notifying

providers when it is time (that is, calendar date) to take a specific action such as ensure colon cancer screening. But reminders have evolved into what is perceived by many to be primarily a tool for measuring compliance regarding clinical and administrative processes, detracting from rather than enhancing clinical care. Survey results demonstrate that the colon-cancer screening reminder is implemented throughout the VA system (although, interviews described in Section 3 suggest that there is variability across institutions in whether or not clinicians actually use the reminder to ensure timely screening).

We instructed respondents to consider delays with actual health impact or delays that would render care not compliant with VA/DoD guidelines. In the context of screening, a delay measured in weeks to months could not plausibly be expected to cause adverse clinical consequences. This is even true with regard to follow-up to abnormal screening tests. Survey comments indicate that many consider current VA guidelines mandating colonoscopy within a specific short time interval (and require referral to outside care if they are not met) to be without a solid clinical rationale, and an unnecessary constraint to optimal deployment of colonoscopy resources to those who need them most urgently.

Moreover, respondents pointed out that community standards for colonoscopy appointments are not better, that Veterans generally do not like to go outside the system for colonoscopies, and that colonoscopies done outside are often suboptimal in quality or pose challenges in terms of the timely availability of clinical reports that are usable within the VA system. Respondents also thought that clinicians and patients faced substantial paperwork to arrange for purchased care.

At most facilities, barriers to increasing the number of colonoscopies performed include lack of physical space, lack of support staff, and lack of physicians trained in performing them. The greatest barrier to hiring more gastroenterologists appears to be pay that is well below national standards. Policy-related inefficiencies were also mentioned: For example, a mandate that colonoscopy patients must be fully dressed when consenting for the procedure undoubtedly has well-intentioned, patient-centric origins, but in fact it causes significant disruptions to the normal workflow, and insofar as it seems like a solution in search of a problem might be an example of the kind of ponderous “mandate from above” that is damaging to employee morale.

### 1.3.7 Appendix B.3.7 Diabetes Mellitus (Type 2)

#### *Clinical Background*

Type 2 diabetes mellitus is a chronic disease of relative insulin deficiency resulting in abnormal blood sugar regulation and associated symptoms and sequelae. Obesity and a family history of diabetes are substantial risk factors for this disease. Type 1 diabetes mellitus is a distinct and less common disease and will not be considered further in this report. Hereafter we refer to type 2 diabetes mellitus as “diabetes.”

#### *Care setting*

Diabetes is often diagnosed in a primary care setting, after routine blood work shows an elevated blood glucose level in an asymptomatic patient. It may also come to attention after a

patient complains of symptoms of high blood sugar (commonly visual or urinary changes). Once diagnosed, treatment involves education about the disease, diet modification, weight loss, and, usually, one or more medications. Primary care physicians are well-qualified to care for most diabetes patients; however, diabetes is particularly well-suited to an interdisciplinary approach (either in a diabetes specialty clinic or a team-based primary care setting). Patients with diabetes that is difficult to control or who have complications may be referred to a diabetes specialist (typically an endocrinologist).

### *Complications*

Poorly-controlled diabetes can result in both acute and chronic sequelae. Acutely, high blood sugar can cause symptoms severe enough to necessitate hospitalization. Overmedication can result in abnormally low blood sugar, which can also lead to hospitalization. High blood sugar over a longer timeframe can lead to a variety of end-organ damage, most notably to the kidneys, the eyes, the peripheral nerves, and the cardiovascular system. Foot problems are also common, due to both peripheral vascular disease (which delays healing) and to neuropathy (which prevent patients from sensing and protecting injuries). Diabetes, not combat-related injuries, is the leading cause of amputations in the VA population (VHA Handbook 1172.03, Amputation System of Care, August 2012).

### *Monitoring*

Patients are asked to use glucometers to frequently check blood sugar and help guide therapy. Successful blood sugar regulation over time is measured by a blood test known as “Hemoglobin A1C.” Patients are screened in primary care for many complications, and often in ophthalmology for periodic retinal examinations, and podiatry for foot care.

### **Survey Results**

There were 110 respondents for the diabetes module. Please see Table I-2 for details of responses and response rates.

### **Delays**

Survey respondents were asked what percentage of patients experienced clinically meaningful delays in receiving (1) services to treat/manage diabetes itself, and (2) services to manage complications. For the services with the greatest frequency of delay (that is, the highest percentage of patients experiencing a delay), participants were asked to formulate a solution that could to reduce the number of these delays and to report the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) to their solutions. We report only those solution components identified as important by more than 10 respondents.

### Juncture 1: Diabetes management

We asked about delays in obtaining the following services: primary care clinic appointment for issues related to glycemic control (for example, symptoms or glucometer reading), consult with endocrinologist/diabetes specialist, nutritionist, podiatry clinic for preventative care, retinopathy screening services, retinopathy treatment services, bariatric surgery (in patients

deemed to be good candidates), and dispensing diabetes-related personal equipment such as glucometers or special footwear.

With the exception of bariatric surgery, for each service, a majority of respondents reported that 10 percent or fewer patients experienced delays. For bariatric surgery, 50 of the 110 respondents reported “not applicable,” and more frequent delays were reported by half of the others (30 of 60). Of note, the interpretation of “Not Applicable” survey responses is unclear; such a response could indicate Veterans’ lack of need for a service, or conversely, complete absence of the service at the facility, despite need. In the case of bariatric surgery, we believe that “not applicable” responses are more likely to represent unmet need, rather than complete lack of demand for this service.

The services most commonly cited as associated with frequent delays were as follows: consult with endocrinologist/diabetes specialist (for example, or poor glycemic control, or for patients at high risk for complications) (27 percent), podiatry clinic (27 percent), and in-person endocrinology for poor glycemic control, or for patients at high risk for complications (21 percent) (Table I-170). The proportions of respondents who reported frequent delays are as follows:

Primary care clinic appointment for issues related to glycemic control (for example, symptoms or glucometer reading)	20%
Consult with endocrinologist/diabetes specialist (for example, or poor glycemic control, or for patients at high risk for complications)	27%
In-person care at endocrinology, for poor glycemic control, or for patients at high risk for complications	21%
Nutritionist	13%
Podiatry clinic for preventative care	27%
Retinopathy screening services	12%
Retinopathy treatment services	11%
Bariatric surgery (in patients deemed to be good candidates)	50%
Dispensing diabetes-related personal equipment such as glucometers or special footwear	6%

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Tables I-171 to I-178 describe the responses in detail. Responses shown here (N = 44) for “consult with endocrinologist/diabetes specialist (for example, or poor glycemic control, or for patients at high risk for complications)” were typical: The most frequently cited as “critically important” or “very important” were as follows:

## Assessment B (Health Care Capabilities)

---

Acquire and/or improve availability of equipment	9%
Increase weekend and evening availability of services	14%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	20%
Implement or increase the availability of tele-health services	23%
Some other solution(s)	28%
Improve personnel supervision, management, or incentives	39%
Improve information technology	43%
Change “central office policies” that affect workflow and efficiency	45%
Create additional space for patient care	48%
Increase the number of other personnel	57%
Increase the number of licensed independent practitioners (for example, physicians, nurse practitioners, psychologists)	59%

### Juncture 2. Services to manage complications of diabetes

We asked about delays in services to manage the complications of diabetes. For each, a majority of respondents reported that 10 percent or fewer patients experienced delays (Table I-179). The top three services with delays of more than 10 percent of patients were as follows: evaluation and treatment by vascular surgery for non-acute limb ischemia (19 percent); evaluation and treatment by cardiology for new symptoms or refractory hyperlipidemia (18 percent); and evaluation and treatment by cardiology for new symptoms or refractory hyperlipidemia (17 percent) (Table I-179). The proportion of respondents who reported frequent delays for these services are as follows:

Evaluation and treatment by vascular surgery for non-acute limb ischemia	19%
Evaluation and treatment by podiatry for new foot lesions	12%
Evaluation and treatment by nephrology for worsening renal function	18%
Evaluation and treatment by cardiology for new symptoms or refractory hyperlipidemia	14%
Evaluation and treatment by podiatry for new foot lesions	17%

## Assessment B (Health Care Capabilities)

---

Respondents who identified delays in particular services were asked to think about a solution, and to rate the importance of various “components of the proposed solution.” Tables I-180 to I-184 describe the responses in detail. Responses shown here (N = 36) for “evaluation and treatment by vascular surgery for non-acute limb ischemia” were typical:

Increase the number of licensed independent practitioners	75%
Increase the number of other personnel	58%
Create additional space for patient care	42%
Acquire and/or improve availability of equipment	39%
Improve information technology	34%
Improve personnel supervision, management, or incentives	33%
Change “central office policies” that affect workflow and efficiency	31%
Some other solution(s)	31%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	26%
Implement or increase the availability of telehealth services	17%
Increase weekend and evening availability of services	14%

### Issues Affecting Provider and System Efficiency

Respondents for the diabetes module (N = 110) were asked to rate the importance of nine potential negative impacts to efficiency. Responses were given on a four-point Likert scale (none, a little, a fair amount, a lot; also “not applicable”). We ranked the items according to the number of respondents who said that they had “a fair amount” or “a lot” of impact (Table I-185):

Providers performing administrative activities that could be performed by others	80%
Too many administrative requirements	76%
Inadequate scheduling system and policies	73%
Insufficient clinical/administrative support staff	70%
Unnecessary documentation requirements or inefficient CPRS interface	65%
Providers performing clinical activities that could be performed by individuals with less training	62%
Patient no-show rates	45%

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

Poor patient flow management	43%
Residency training/teaching requirements	14%

**Recruitment and Retention**

Specialties examined in this module included primary care staff involved in coordinating care, as well as specialties particular to diabetes, endocrinology, podiatry, nutrition counseling and ophthalmology. 110 of the facilities answered the questions relating to whether there were problems recruiting or retaining these staff categories. Only those facilities responding “yes” to a given category were asked about barriers to retention or recruitment.

Similar to the general (Chief of Staff) module, a high proportion of facilities reported difficulty in recruiting primary care physicians (72 percent) (Table I-186). Non-physician primary care staff categories were also problematic with 43 percent reporting difficulties. While nearly a third of facilities reported trouble hiring endocrinologists, 35 percent of facilities reported this position as not applicable. Non-competitive wages were the most commonly cited reason for recruitment problems for both primary care and the non-physician primary care staff (60 and 70 percent, respectively) (Table I-187). The second most common reason for both was the human resources process at 43 and 47 percent, respectively.

Nearly two thirds of facilities also reported difficulties in retaining primary care physicians, followed closely by 31 percent of facilities reporting problems retaining non-physicians primary care providers (Table I-188). For primary care physician and non-physician staff, the most common retention problem was the dissatisfaction with workload (45 and 41 percent, respectively), followed closely by burnout (49 and 38, respectively) (Table I-189).

**Free-text comments**

Comments from respondents augment the detailed survey results regarding delays in diabetes care.

Multiple respondents reported that the inability to prioritize patients led to delays in care, relative to when it was truly needed, for patients with relatively urgent problems. For example, mandated limits on time from appointment request to delivery of care prevented VA staff from exercising clinical judgment, paradoxically worsening delays for patients with truly urgent needs because patients with less urgent conditions were scheduled first, to stay within the rigid benchmark: “Blanket mandates for timing between consultation request placement and delivery of care cause inefficient utilization of limited resources.”

Many respondents viewed the scheduling software as antiquated, inflexible, and error prone, exacerbating delays; they believed that inadequately trained scheduling staff precluded intelligent patient scheduling based on true clinical urgency. Policies penalizing canceled and rescheduled appointments further impeded priority-driven scheduling. For example, one respondent commented: “...clinic staff have to spend additional time working around scrubbing of bookings to protect access.” In another example, podiatry clinics were judged to have lower standards for urgent access, forcing patients with urgent podiatric problems to receive care elsewhere.

Inadequate staffing, for both clinical and support responsibilities, figured prominently in

respondent comments. Many reported that due to insufficient support staff, burdensome administrative mandates, and a flood of EHR prompts, clinicians were required to perform tasks well below their levels of training. For example, “Many clinical reminders can and should be done by ancillary staff, yet are left to providers to complete and this takes time away from patient care responsibilities.” Insufficient support staff made it difficult to offload work such as chronic disease management from clinicians.

In addition, respondents noted clinician shortages in endocrinology, podiatry, nephrology, ophthalmology, wound and vascular care, and nutrition and bariatric services. Multiple respondents noted that VA salaries in these specialties were lower than non-VA salaries, making it difficult to recruit into VA. Cumbersome hiring rules and regulations were thought to worsen the problem.

Telehealth was cited as a potential way to expand clinical resources. For example: “If teleretinal imaging could be done as screening every year, it might free up time of the eye providers to see those that truly need an exam.” “Additional access to tele-endocrinology services could be made possible with the addition of 1-2 tele-endocrinologists.” No-shows were noted by multiple respondents as a barrier to access since these consumed appointment slots. But respondents thought “Telehealth services will certainly improve no show rates and is excellent for diabetes follow-up appointments.”

Some respondents observed that even when it was available, purchased care was not necessarily an adequate substitute for within-VA care because poor communication between VA and non-VA providers hampered care coordination. For example, “Out-sourcing endocrine care tends to fragment care, since communication is less good.” Some respondents suggested telehealth as a way to make care transitions seamless.

Finally, and very interestingly, a small number of respondents reported that quality measures resulted in delays. For example, licensed practical nurses checking blood pressure multiple times to meet a quality performance measure created delays within the primary care clinic and tied up staff who could otherwise be assisting more patients.

Many individuals summarized a range of frustrations and the multifactorial nature of problems:

Primary Care panel sizes are too large, operating at 100 percent of capacity, which increases risk of burnout and leads to lapses in care... There needs to be stronger link between what program offices require and the funding to the field. Currently the requirements of program offices are often unfunded mandates. Program offices need to understand that incremental change ultimately requires re-thinking staffing models or the field dies a death of a thousand cuts. In our location night and weekend hours are not desired by our patients and requiring continuing these activities is wasteful. Some of the changes coming in the IT and EHR [electronic health record] world like active notes could be game changer. Tele health has been oversold as a potential solution. Smaller panel sizes and more PACT [Patient Aligned Care Teams] imply more space. The current space planning process is so lengthy that space is often too small by the time it is opened.

Safe and quality diabetes care CANNOT be delivered to all Veterans who need it in the current care delivery paradigm. We have strong data that system based diabetes case



management models work well but facilities must provide sufficient qualified personnel (diabetes case managers) AND support medical directors (e.g., MD, DO) to oversee these programs. The type of effort involved in effective/safe diabetes care that is well established to be time-intensive MUST be able to be captured and recognized as effort (beyond current RVU based methods) . the number of Primary care MDs are also currently insufficient to provide diabetes care to patients who are not high-risk (that diabetes case management and endocrinologist see).

I am taking this survey at 6AM on a Sunday. We don't need more supervision and incentives...Just remove some barriers to efficiency, provide the type of support mentioned (space for one on one teaching and for groups, excellent diabetes educators, and a facile EHR) FYI it take roughly 30 percent of the time allotted for office visit to document, place orders etc. there's room for improvement when our highest paid personnel are doing this....

### Conclusions

Diabetes is a common but serious chronic illness that is managed primarily by primary care providers, but which can benefit from an interdisciplinary approach to care. It is itself a leading cause of morbidity and mortality among Veterans and therefore access to high quality and timely care is of paramount importance.

The survey suggests that frequent delays in obtaining a primary care clinic appointment for glycemic control problems occur at approximately one in five local VA systems. This is a higher number than that obtained from a similar question posed to the chiefs of staff regarding access to primary care follow-up in general (only 7 percent of those respondents noted frequent delays). The discrepancy might be explained because the observers are different or because there is some imprecision in how the question might be interpreted.

Conceptually, there is not a clear definition of what constitutes optimal access to care for a diabetes patient, and therefore what a delay really is. We know it primarily when we do not see it—as stated in one comment, “planned 6 month appointments with the PCP [primary care physician] is not adequate for good control of diabetes mellitus.” But what is? Arguably, the measure might have something to do with whether a provider is able to schedule follow-up appointments as frequently as he/she deems necessary. The survey does not tell us whether this is so. An alternative to a timeliness-focused process measure might be to consider objective measures such as hemoglobin A1C as a marker of whether access to quality care was truly adequate.

Reported delays in access to endocrinologists or other diabetes specialists were slightly more widespread, as were delays to podiatry appointments. Bariatric surgery was a notable outlier. Half the respondents marked “NA” and half of those who didn't reported frequent delays.

With the caveat that free-text comments come from a selected sample of respondents, in aggregate they paint a striking picture of frustration—partly because resources are inadequate, but perhaps more strikingly, it appears that many of these chiefs of service (and presumably those under them) appear to believe that they are doing battle against the institution they work for, rather than working with them, to offer Veterans the care they believe they need.

### 1.3.8 Appendix B.3.8 Gynecologic Surgery

#### *Clinical Background*

Women are a rapidly increasing and important component of the U.S. armed services. While female Veterans make up approximately 8 percent (1.8 million) of the current Veteran population, their numbers are expected to grow, as the number of women entering the active duty military force and the National Guard and Reserves continues to increase. The number of women Veterans who use services provided by the VHA has doubled in the past 10 years, growing from 160,000 in 2000 to more than 337,000 in 2011; their median age of 48 years is significantly younger than their male counterparts (median age 63 years).

With their growing numbers has come an increased emphasis on the provision of female-specific health care. Female Veterans have unique and complex health care needs, ranging from care for obstetric and gynecologic conditions to mental health and chronic pain/musculoskeletal conditions. In this subsection, we focus on access to care for conditions requiring gynecologic surgery, such as gynecologic cancers, fibroids, endometriosis, ectopic pregnancies, and stress urinary incontinence. While some of these conditions could be handled by a general surgeon, the intent was to focus on conditions for which the standard of care would include surgical treatment by a gynecologist, whether in the inpatient or outpatient setting. In the survey, we focus on access to an initial surgical evaluation by a gynecologist, and then access to the surgery itself, regardless of whether it was inpatient or outpatient surgery.

#### *Survey Results*

A total of 107 respondents answered one or more questions in this module, which contained questions about the frequency of delays and proposed solutions for addressing them. Questions also touched on factors impacting provider and system efficiency, and workforce recruitment and retention.

#### **Delays**

Respondents were asked about delays at two care junctures: (1) Scheduling an initial surgical evaluation with a gynecologist, and (2) Receiving the surgical procedure.

Respondents who reported delays were asked to formulate a solution to the delay, and to rate the importance of 11 potential components (for example, creating additional space, increasing the number of licensed independent practitioners) of their solutions.

#### Juncture 1: Initial surgical evaluation

Reported delays related to scheduling an initial surgical evaluation with a gynecologist are detailed in Table I-190. Most respondents said that delays for this service were infrequent, and about half said that no patient experienced delays, regardless of the setting. The most notable reported delays (20 percent) were when a patient needed to be referred to a gynecologist outside the respondent's local health care system for an initial surgical evaluation (specific services and proportion of respondents who mentioned frequent delays in that service are given below):

## Assessment B (Health Care Capabilities)

---

VA Gynecologist located at this administrative parent (local health care system)	9%
VA Gynecologist located at another VA health care system	20%
Community Gynecologist (fee-basis or contracted care)	17%

Respondents who identified that there were clinically meaningful delays in scheduling patients for an initial surgical evaluation (N = 22) were asked to think about a solution, and to rate the importance of various components of the proposed solution. Tables I-191–I-193 describe the responses in detail. Responses shown here for “VA gynecologist located at this administrative parent (local health care system) were typical, and show that increasing the number of providers/personnel and space for patient care were the most commonly suggested components of the solution to the delay problems (percentages are given as the proportion of respondents who rated the element “critically important” or “very important”).

Increase the number of licensed independent practitioners	73%
Increase the number of other personnel	73%
Create additional space for patient care	59%
Acquire and/or improve availability of equipment. Describe the type(s) of equipment needed in the comments box below	55%
Improve personnel supervision, management, or incentives	50%
Change “central office policies” that affect workflow and efficiency	45%
Improve information technology	41%
Some other solution(s)	41%
Implement or increase the availability of telehealth services	27%
Increase use of fee-basis or contracted care and/or simplify administrative processes for approval and transfer to care in the community	27%
Increase weekend and evening availability of services	5%

### Juncture 2: Surgical procedure

The survey asked separately about delays in undergoing the surgical procedure. Responses to this question produced similar patterns (Tables I-194 to I-197). The proportions of respondents who said that there were frequent delays at their institutions are shown:

At this local VA health care system	12%
-------------------------------------	-----

At another local VA health care system	23%
In the community using fee-basis or contracted care	15%

**Issues Affecting Provider and System Efficiency**

Respondents were asked to describe the degree to which various issues affected provider and system efficiency. Table I-198 describes the results. The most frequently cited issues were as follows:

Insufficient clinical/administrative support staff	45%
Providers performing administrative activities that could be performed by others	43%
Patient no-show rates	43%
Inadequate scheduling system and policies (for example, hard to cancel or reschedule, coordinate)	40%
Unnecessary documentation requirements or inefficient CPRS interface	39%
Too many administrative requirements (Initiatives/Policies/Programs)	39%
Providers performing clinical activities that could be performed by individuals with less training	29%
Poor patient flow management (room/bed turnover, appointments)	20%
Residency training/teaching requirements	12%

**Recruitment and Retention**

The facility survey also contained questions that focused on issues related to hiring and retaining gynecologists. There were 106 facilities responded to questions about problems recruiting/retaining gynecologists. Approximately 28 percent reported problems recruiting gynecologists. The top two recruiting barriers were non-competitive wages and the length of the human resources process (83 percent for both).

Only 12 percent of respondents reported problems retaining gynecologists. Among the few facilities reporting difficulties, the main reasons cited were dissatisfaction with pay and inadequate equipment/resources/space (62 percent, both) (Table I-199 to I-202).

**Free-text comments**

Respondents for the gynecologic surgery module represent a service that is in much lower demand than many of the other conditions we surveyed, even though demand is growing in some areas of the country. As a result, the gynecology programs rely more heavily on non-VA or purchased care compared with other programs. In-house gynecology services are often only provided for a few days per week or month. The limited offering of clinic time has obvious

ramifications for Veteran access, which many of the respondents noted in the free text citations.

Barriers such as not enough provider time or space for existing staff to work in were frequently mentioned. Several respondents mentioned limited access to the operating room as a key barrier: “Because GYN [gynecology] is a small clinical service competing for [operating room] time with much larger and more politically powerful services this is not always seen as important (though I must add that immediate supervisors and Surgery admin staff are very responsive and try their best).” Burdensome administrative requirements and a lack of adequately trained support staff were also often mentioned in the free-text responses. For example, one respondent noted: “Administratively, too often we are assigned duties without adequate data reports, and without staff well versed in how to generate that data. So we spend gobs of time figuring out how to get the data we need.”

Many respondents noted difficulties in referring patients to gynecologic surgery services in the community, which also hampers Veteran access. Several respondents noted that, at best, the processes to refer Veterans out to the community, pay claims, and then receive the medical records back in-house are inefficient: “Our business office cannot process our non-VA care requests fast enough and do a miserable job at bill paying. Female [Veterans] need to fend off collection agencies and fight damaged credit due to non-payment of maternity care bills.” Many respondents noted that TriWest and Health Net do not schedule appointments quickly enough. (TriWest and Health Net are the two contractors operating the provider network system for some of the non-VA care requests.) Respondents also noted that the staff within these organizations may not be sufficiently trained to provide the community facilities with enough background on the Veteran so the community facility may not schedule them in an appropriate time frame for the given medical problem.

### **Conclusion**

Although the absolute number of female Veterans who require surgical treatment by a gynecologist is low, demand is likely to increase as more women are discharged from military service and seek care at VA. Our results suggest that when gynecologic surgery services are available at a local VA health care system, fewer than 10 percent of respondents report clinically meaningful delays in patient access to an initial surgical evaluation. However, when patients need to go outside the local health care system, either to the community or to another administrative parent, the frequency of reported delays rises to 17 percent and 20 percent respectively. Similar results are seen for access to surgical treatment. The lack of administrative support staff, which results in providers needing to do administrative tasks, was seen by nearly half of the respondents as an important cause of provider and system inefficiency. Low wages were the most frequent response for problems in both hiring and retaining gynecologists on VA staff.

## **1.4 Appendix B.4 Discussion**

The 2015 Survey of VA Resources and Capabilities provides a unique and comprehensive, though subjective, assessment of VA’s capacity to provide timely and accessible care to

Veterans. The survey provides VA employee perspectives on the strengths and weaknesses of their organization. Survey respondents—VA chiefs of staff and clinical chiefs of service—generally have considerable experience working in the VA system and managing VA medical facilities and health care employees. Thus, their assessments, though by their nature subjective, are informed by direct and diverse experiences in providing health care to Veterans.

The survey's eight modules were distributed to eight different clinical leaders at each institution. Therefore, an additional strength of the results viewed in aggregate is that many of the same questions (with slight context-specific modification) were answered independently by different people in charge of different clinical domains. Therefore, to the extent that common themes emerge, this is likely to reflect broader experiences and not those specific to a single clinical department.

A primary feature of the survey was asking respondents to estimate the proportion of patients who were delayed in receiving services or undergoing care transitions. We specified that we were interested in “clinically meaningful delays,” and at each point such a question appeared, we specified the following: “Consider delays which might put a patient at risk for adverse outcomes, slow resolution of symptoms, or which are not compliant with VA/DoD guidelines.” Several respondents noted that where delays did occur, they did not believe they had any adverse clinical consequences. However, respondents may have different perspectives on when delays lead to adverse clinical consequences or are not compliant with guidelines. As noted in Section 6, in many clinical areas, there is a thin evidence base on the association between wait times and adverse outcomes.

A strong common theme in responses across modules was that VA guidelines are overly prescriptive, enforcing timeliness standards that are not met in the private sector, that do not have an evidence-based rationale, and that constrain providers in a way that diminishes their capacity to divert resources to the patients who need them most urgently. Moreover, the essence of many comments, remarkably consistent across disciplines, is that such constraints, and more generally the feeling that inefficiencies are imposed from a VA Central Office lacking real-world clinical sensibilities, are demoralizing. Demoralized clinicians might be expected to contribute to broader problems with organizational culture that are described in each set of responses.

It is also possible that diverting the focus of a clinical encounter away from patient-driven concerns and toward overly prescriptive VA guidelines may have an adverse impact on patient care. Likewise, insofar as resources are limited, diverting resources away from clinical activities and toward clerical duties, mandatory online trainings, elaborate screening questionnaires, and even questionnaires such as the 2015 Survey of VA Resources and Capabilities (as one respondent ironically pointed out) could limit the total amount of care that can be provided and thereby diminish access in one way or another. Similar concerns have been raised in private-sector health care delivery organizations.

When assessing delays in access to care, it is easy to focus on delays in receiving a discrete one-time service or an initial appointment to a clinic, if for no other reason than it is measurable as the elapsed time between when care is requested by a patient or provider and the time when the service occurs. But an unintended consequence of such a focus—highlighted in responses

to both PTSD and TBI with regard to mental health professionals and particularly mental health subspecialists (for example, cognitive behavioral therapists and neuropsychiatrists)—is to create a focus on initial assessment rather than ongoing treatment. For mental health conditions, some PTSD and TBI module respondents reported that they lack the ability to schedule repeated follow-up visits on a sufficiently regular basis to develop a therapeutic relationship.

Our respondents were ambivalent about the contributions of telehealth. Some saw it as increasing the reach of VA providers in circumstances when patients could not readily come to the VA health center. But others questioned its acceptance by patients and expressed skepticism regarding potential productivity gains.

When asked about purchased care, respondents generally reflected some degree of support for increased use of it in certain situations. However, many respondents also expressed concern about the quality of care for VA patients using purchased care. Multiple respondents felt that some Veterans, whether being treated for service-connected disabilities or not, feel that VA is their medical home. In addition, respondents viewed it as likely that some VA patients have had bad experiences with unexpected bills generated outside the VA system.

Respondents reported concern that purchased care currently presents a substantial challenge for information transfer. For some conditions (for example, coronary artery bypass graft surgery) there may be fewer points of coordination between VA and non-VA providers. However, if a VA patient uses purchased care for an ultrasound or a colonoscopy and the results are not available, then the value of that service is diminished if the results are not as quickly or completely accessible as they would be in-house, if the quality is not as good, or if, as is reportedly sometimes true, the service takes longer to get outside the system than it would within it. Furthermore, some respondents (for TBI in particular) indicated that in-house capacity constraints are often paralleled by non-VA capacity constraints in the same region for the same services.

Coronary artery bypass graft surgery was one service where delays were reported to be frequent and where several respondents made a strong case for increased use of purchased care. The rationale is that there are problems with access not only in terms of time, but also in terms of geography. Several respondents noted that because regionalization is a necessity (since cardiothoracic surgeons must do a minimum number of annual cases to maintain proficiency), some patients must travel long distances for this operation. There was also a suggestion (by more than one respondent) that some cardiothoracic surgeons performing coronary artery bypass graft surgery at VA did not meet acceptable proficiency and training standards. One of the respondents therefore posed the following question: Should a patient travel 200 miles away from home to have major open heart surgery performed by a surgeon that may not have state-of-the-art skills, when closer alternatives will allow a recovery closer to home and family and possibly offer a better chance at a good outcome?

In a related vein, responses to the acute coronary syndromes module, unique in that it covered inpatient care and treatment for an emergent condition, raised similar questions about how access should be defined. For acute inpatient care, it is tempting to consider timeliness from the time that a patient hits the door of the emergency department, but in fact, the biggest

problems with access might be seen in patients who never receive care at all. Nor is it clear that they should, since the “standard of care” in terms of instructing patients with acute coronary syndromes-type symptoms is to go to the nearest emergency department. But if the nearest emergency department is not at a VA facility, then a patient will either end up outside the system with a bill that might not be covered by VA, or may have taken an unnecessary risk by travelling too far. This conundrum was discussed by at least two respondents. Moreover, while a middle-ground solution might be that a patient should go to the nearest emergency department and then transfer to a VAMC when stable, the greatest delays described, among all questions in the survey, were in regard to transfer of stable acute coronary syndromes patients in to VA for further management. This, respondents described, is a function both of limited bed availability, and an institutional culture that lacks a “service mentality.”

One service chief posed a provocative alternative that seems consistent with the views of many other respondents: “Space and personnel are key, but we could do many more procedures with existing structural resources if our processes were more efficient/streamlined. There are major organizational and regulatory (VA-specific) impediments to efficient care.”



## Appendix C    References

- Abrams, Debra J., & Geier, Mark R. (2006). A comparison of patient satisfaction with telehealth and on-site consultations: A pilot study for prenatal genetic counseling. *Journal of Genetic Counseling*, 15(3), 199-205.
- Adler, G., Pritchett, L. R., Kauth, M. R., & Nadorff, D. (2014). A Pilot project to improve access to telepsychotherapy at rural clinics. *Telemedicine and e-Health*, 20(1), 83-85.
- Agency for Healthcare Research and Quality. (2015). Patient safety indicators overview. Retrieved from [http://www.qualityindicators.ahrq.gov/modules/psi\\_resources.aspx](http://www.qualityindicators.ahrq.gov/modules/psi_resources.aspx)
- Agency for Healthcare Research and Quality. (n.d.). Consumer assessment of healthcare providers and systems (CAHPS). <https://cahps.ahrq.gov/>
- Agency for Healthcare Research and Quality. (2012). Table 2: Number of events for selected conditions by type of service: United States, 2012. MEPS Site Map. *Generated Interactively*. Retrieved from [http://meps.ahrq.gov/mepsweb/data\\_stats/tables\\_compendia\\_hh\\_interactive.jsp?\\_SERVICE=MEPSocket0&\\_PROGRAM=MEPSPGM.TC.SAS&File=HCFY2012&Table=HCFY2012\\_CNDXP\\_B&Debug=](http://meps.ahrq.gov/mepsweb/data_stats/tables_compendia_hh_interactive.jsp?_SERVICE=MEPSocket0&_PROGRAM=MEPSPGM.TC.SAS&File=HCFY2012&Table=HCFY2012_CNDXP_B&Debug=)
- Agha, Z., Schapira, R. M., Laud, P. W., Mcnutt, G., & Roter, D. L. (2009). Patient satisfaction with physician–patient communication during telemedicine. *Telemedicine and e-Health*, 15(9), 830-839.
- AHRQ—See Agency for Healthcare Research and Quality.
- Allen, A., & Hayes, J. (1995). Patient satisfaction with teleoncology: A pilot study. *Telemedicine Journal*, 1(1), 41-46.
- Altarum Institute. (2015). VHA Project ARCH Evaluation.
- Alverson, D. C., Hannon, S., Sullivan, E., Prill, A., Effertz, G., Helitzer, D., Beffort, S., & Preston, A. (2004). Telehealth in the trenches: Reporting back from the frontlines in rural america. *Telemedicine Journal & E-Health*, 10(Supplement 2), S-95-S-109.
- American Customer Satisfaction Index. (2014, March). *Veterans Health Administration 2013 Customer Satisfaction Inpatient Survey*. Ann Arbor, MI.
- American Hospital Association. (2008). 2008 AHA Annual Survey Health Forum, L.L.C. Chicago, Illinois: American Hospital Association.
- American Hospital Association. (2014). Annual survey database fiscal year 2014 documentation manual. Retrieved from <http://www.ahadataviewer.com/book-cd-products/aha-survey/>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC.
- AMVETS, Disabled American Veterans, Paralyzed Veterans of America, & Veterans of Foreign Wars of the U.S. (VFW). (2015). *The independent budget veterans agenda for the 114th Congress: Policy recommendations for Congress and the President*.
- Andrus, C. H., Johnson, K., Pierce, E., Romito, P. J., Hartel, P., Berrios-Guccione, S., & Best, W. (2001). Finance modeling in the delivery of medical care in tertiary-care hospitals in the Department of Veterans Affairs. *Journal of Surgical Research*, 96, 152-157. doi: 10.1006/jsre.1999.5728

- Asch, S., Glassman, P., Matula, S., Trivedi, A., Miake-Lye, I., & Shekelle P. (2010). *Comparison of quality of care in VA and non-VA settings: A systematic review*. (VA-ESP Project # 05-226). Washington, DC: Department of Veterans Affairs.
- Asch, S. M., McGlynn, E. A., Hogan, M. M., Hayward, R. A., Shekelle, P., Rubenstein, L., Keeseey, J., Adams, J., & Kerr, E. A. (2004). Comparison of quality of care for patients in the Veterans Health Administration and patients in a national sample. *Annals of Internal Medicine*, 141(12), 938–945.
- Auerbach, D. I., Weeks, W. B., & Brantley, I. (2013, 2013). Health care spending and efficiency in the U.S. Department of Veterans Affairs.
- Bach, P. B., Cramer, L.D., Schrag, D., Downey, R.J., Gelfand, S. E., & Begg, C.B. (2001). The influence of hospital volume on survival after resection for lung cancer. *New England Journal of Medicine*, 345(3), 181-188.
- Bagalman, E. (2014). *The Number of veterans that use VA health care services: A fact sheet* (R43579). Retrieved from <https://www.fas.org/sgp/crs/misc/R43579.pdf>
- Bakaeen, F. G., Blaustein, A., & Kibbe, M. R. (2014). Health care at the VA: Recommendations for change. *Journal of the American Medical Association*, 312(5), 481-482. doi: 10.1001/Journal of American Medical Association.2014.8054
- Baker, L. C., Johnson, S. J., Macaulay, D., & Birnbaum, H. (2011). Integrated telehealth and care management program for Medicare beneficiaries with chronic disease linked to savings. *Health Affairs*, 30(9), 1689-1697.
- Bansal, D., Gaddam, V., Aude, Y. W., Bissett, J., Fahdi, I., Garza, L., Joseph, J., Molavi, B, Pai, B. V., Smith, A., Smith, E. S., & Mehta, J. L. (2005). Trends in the care of patients with acute myocardial infarction at a university-affiliated Veterans Affairs Medical Center. *Journal of Cardiovascular Pharmacology and Therapeutics*, 10, 39-44.
- Barnett, M. J., Perry, P. J., Langstaff, J. D., & Kaboli, P. J. (2006a). Comparison of rates of potentially inappropriate medication use according to the Zhan criteria for VA versus private sector medicare HMOs. *Journal of Managed Care Pharmacy*, 12, 362-370.
- Barnett, T. E., Chumblor, N. R., Vogel, W. B., Beyth, R. J., Qin, H., & Kobb, R. (2006b). The effectiveness of a care coordination home telehealth program for veterans with diabetes mellitus: A 2-year follow-up. *American Journal of Managed Care*, 12(8), 467.
- Bass, E., Ellis, P., & Golding, H. (2014). Comparing the costs of the veterans' health care system with private-sector costs. Washington, DC: Congressional Budget Office. Retrieved from: [www.Congressional Budget Office.gov/publication/49763](http://www.Congressional Budget Office.gov/publication/49763)
- Bean-Mayberry, B., Yano, E. M., Bayliss, N., Navratil, J., Weisman, C. S., & Scholle, S. H. (2007). Federally funded comprehensive women's health centers: Leading innovation in women's healthcare delivery. *Journal of Women's Health*, 16, 1281-1290. doi: 10.1089/jwh.2006.0284
- Beck, M. (2014, January 26). At VHA, Doctors, Nurses Clash on Oversight, *Wall Street Journal*. Retrieved from <http://www.wsj.com/articles/SB10001424052702304856504579340603947983912>
- Begg, C. B., Cramer, L. D., Hoskins, W. J., & Brennan, M. F. (1998). Impact of hospital volume on operative mortality for major cancer surgery. *Journal of the American Medical Association*, 280(20), 1747-1751.

- Belote, J., Fulton, L. V., & Brooks, M. S. (2012). Patient satisfaction as a function of in-house versus contract staffing models in Veterans Affairs community-based outpatient clinics. *Military Medicine*, 177, 23-26.
- Bendixen, R. M., Levy, C., Lutz, B. J., Horn, K. R., Chronister, K., & Mann, W. C. (2008). A telerehabilitation model for victims of polytrauma. *Rehabilitation Nursing*, 33(5), 215-220.
- Berke, E. M., West, A. N., Wallace, A. E., & Weeks, W. B. (2009). Practical and policy implications of using different rural-urban classification systems: A case study of inpatient service utilization among Veterans Administration users. *Journal of Rural Health*, 25, 259-266. doi: 10.1111/j.1748-0361.2009.00228.x
- Berlowitz, D. R., Rosen, A. K., Wang, F., Tsilimingras, D., Tariot, P. N., Engelhardt, J., Kader, B., & Mukamel, D. B. (2005). Purchasing or providing nursing home care: Can quality of care data provide guidance. *Journal of the American Geriatrics Society*, 53, 603-608. doi: 10.1111/j.1532-5415.2005.53207.x
- Best, R. G., Hysong, S. J., Pugh, J.A., Ghosh, S., & Moore, F. I. (2006). Task overlap among primary care team members: An opportunity for system redesign? *Journal of Healthcare Management*, 51(5), 295-306; discussion 306-297.
- Bilimoria, K. Y., Bentrem, D. J., Tomlinson, J. S., Merkow, R. P., Stewart, A. K., Ko, C. Y., Prystowsky, J. B., & Talamonti, M. S. (2007). Quality of pancreatic cancer care at Veterans Administration compared with non-Veterans Administration hospitals. *American Journal of Surgery*, 194, 588-593. doi: 10.1016/j.amjsurg.2007.07.012
- Birkmeyer, J. D., Siewers, A. E., Finlayson, E. V. A., Stukel, T.A., Lucas, F. L., Batista, I, Welch, H. G., & Wennberg, D.E. (2002). Hospital volume and surgical mortality in the United States. *New England Journal of Medicine*, 346(15), 1128-1137.
- Birkmeyer, J. D., Stukel, T. A., Siewers, A.E., Goodney, P. P., Wennberg, D. E., & Lucas, F. L. (2003). Surgeon volume and operative mortality in the United States. *New England Journal of Medicine*, 349(22), 2117-2127.
- Birkmeyer, J. D., Sun, Y., Goldfaden, A., Birkmeyer, N. J.O., & Stukel, T.A. (2006). Volume and process of care in high-risk cancer surgery. *Cancer*, 106(11), 2476-2481.
- Bloch, C. (2014, April 16). DOD's progress with telehealth. Retrieved June 1, 2015, from <http://federaltelemedicine.com/?p=1981>
- Boitano, L. T., Wang, E. C., & Kibbe, M. R. (2012). Differential effect of nutritional status on vascular surgery outcomes in a Veterans Affairs versus private hospital setting. *American Journal of Surgery*, 204, e27-37. doi: 10.1016/j.amjsurg.2012.07.023
- Bond, C. A., & Raehl, C. L. (2007). 2006 national clinical pharmacy services survey: Clinical pharmacy services, collaborative drug management, medication errors, and pharmacy technology. *Pharmacotherapy*, 28, 1-13. doi: 10.1592/phco.28.1.1
- Borzecki, A. M., Christiansen, C. L., Loveland, S., Chew, P., & Rosen, A. K. (2010). Trends in the inpatient quality indicators: The Veterans Health Administration experience. *Medical Care*, 48, 694-702. doi: 10.1097/MLR.0b013e3181e419e3
- Bosque, E. (2015). Collaboration, not competition: Cost analysis of neonatal nurse practitioner plus neonatologist versus neonatologist-only care models. *Advances in Neonatal Care*, 15(2), 112-118.

- Branas, C. C., MacKenzie, E. J., & ReVelle, C. S. (2000). A trauma resource allocation model for ambulances and hospitals. *Health Services Research, 35*(2), 489-507.
- Branas, C. C., MacKenzie, E. J., Williams, J. C., Schwab, C. W., Teter, H. M., Flanagan, M. C., Blatt, A. J., & ReVelle, C. S. (2005). Access to trauma centers in the United States. *Journal of the American Medical Association, 293*(21), 2626-2633. doi: 10.1001/Journal of American Medical Association.293.21.2626
- Brandenburg, L., Gabow, P., Steele, G., Toussaint, J., & Tyson, B. J. (2015). *Innovation and best practices in health care scheduling*. Washington, DC: Institute of Medicine.
- Bray, R. M., Pemberton, M. R., Hourani, L. L., Witt, M., Olmsted, K. L. R., Brown, J. M., . . . Bradshaw, M. (2009). 2008 Department of Defense survey of health related behaviors among active duty military personnel: RTI International.
- Brown, S. A, & Grimes, D. E. (1995). A meta-analysis of nurse practitioners and nurse midwives in primary care. *Nursing Research, 44*(6), 332-339.
- Buppert, C. K. (1995). Justifying nurse practitioner existence: hard facts to hard figures. *Nurse Practitioner, 20*(8), 43-49.
- Burgel, B. J., Wallace, E. M., Kemerer, S. D., & Garbin, M. (1997). Certified occupational health nursing. Job analysis in the United States. *AAOHN Journal: official Journal of the American Association of Occupational Health Nurses, 45*(11), 581-591.
- Burns, L. R, & Pauly, M. V. (2012). Accountable care organizations may have difficulty avoiding the failures of integrated delivery networks of the 1990s. *Health Affairs, 31*, 2407–2416.
- Buzza, C., Ono, S. S., Turvey, C., Wittrock, S., Noble, M., Reddy, G., Kaboli, P. J., & Reisinger, H. S. (2011). Distance is relative: Unpacking a principal barrier in rural healthcare. *Journal of General Internal Medicine, 26 Suppl 2*, 648-654. doi: 10.1007/s11606-011-1762-1
- Byrne, C. M., Mercincavage, L. M., Bouhaddou, O., Bennett, J. R., Pan, E. C., Botts, N. E., Olinger, L. M., Hunolt, E., Banty, K. H., & Cromwell, T. (2014). The Department of Veterans Affairs' (VA) implementation of the virtual lifetime electronic record (VLER): Findings and lessons learned from health information exchange at 12 sites. *International Journal of Medical Informatics, 83*(8), 537-547.
- Byrne, C. M., Mercincavage, L. M., Pan, E. C., Vincent, A. G., Johnston, D. S., & Middleton, B. (2010). The value from investments in health information technology at the US Department of Veterans Affairs. *Health Affairs, 29*(4), 629-638.
- Campbell, J. L., Fletcher, E., Britten, N., Green, C., Holt, T., Lattimer, V., Richards, D. A., Richards S. H., Salisbry C., Taylor, R. S., Calitri R., Bowyer V., Chaplin K., Kandiyali R., Murdoch J., Price L., Roscoe J., Varley A., & Warren F. C. (2015). The clinical effectiveness and cost-effectiveness of telephone triage for managing same-day consultation requests in general practice: A cluster randomised controlled trial comparing general practitioner-led and nurse-led management systems with usual care (the ESTEEM trial). *Health Technology Assessment, 19*(13), 1-212.
- Campling, B. G., Hwang, W. T., Zhang, J., Thompson, S., Litzky, L. A., Vachani, A., Rosen, I. M., & Algazy, K.M. (2005). A population-based study of lung carcinoma in Pennsylvania: Comparison of Veterans Administration and civilian populations. *Cancer, 104*, 833-840. doi: 10.1002/cncr.21228

- Carande-Kulis, V. G., Getzen, T. E., & Thacker, S. B. (2007). Public goods and externalities: A research agenda for public health economics. *Journal of Public Health Management and Practice*, 13, 227-232.
- Carey, J. S., Danielsen, B., Gold, J. P., Rossiter, S. J., & California Cardiac Surgery Initiative. (2005). Procedure rates and outcomes of coronary revascularization procedures in California and New York. *Journal of Thoracic and Cardiovascular Surgery*, 129(6), 1276-1282.
- Carey, K., Montez-Rath, M.E., Rosen, A. K., Christiansen, C. L., Loveland, S., & Ettner, S. L. (2008). Use of VA and Medicare services by dually eligible veterans with psychiatric problems. *Health Services Research*, 43(4), 1164-1183.
- Carr, B. G., Branas, C.C., Metlay, J. P., Sullivan, A. F., & Camargo, C. A., Jr. (2009). Access to emergency care in the United States. *Annals of Emergency Medicine*, 54(2), 261-269. doi: 10.1016/j.annemergmed.2008.11.016
- Carrier, E. R., Yee., & Stark, L. (2011). Matching supply to demand: Addressing the U.S. primary care workforce shortage. *Policy Analysis*, 7. National Institute for Health Care Reform.
- Cassidy, A., Bodenheimer, T. S., Agres, T., Schawrtz, A., & Dentzer, S. (2012). Health policy brief: Nurse practitioners and primary care. *Health Affairs*, 1-4.
- Centers for Disease Control. (2010). National Ambulatory Medical Care Survey Factsheet.
- Centers for Medicare & Medicaid Services. (2013). National health expenditures. Retrieved from <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.html>
- Centers for Medicare & Medicaid Services. (2014). Outcome measures (background). Retrieved from <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/OutcomeMeasures.html>
- Centers for Medicare & Medicaid Services. (2015) Hospital compare website. Retrieved July 9, 2015, from <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalCompare.html>
- Chakker, H. A., O' Hare, A. M., Johansen, K. L., Hynes, D., Stroupe, K., Colin, P. M., & Chertow, G. M. (2004). Influence of race on kidney transplant outcomes within and outside the Department of Veterans Affairs. *Journal of the American Society of Nephrology*, 16, 269-277. doi: 10.1681/asn.2004040333
- Cherniack, E. P., Sandals, L., Gillespie, D., Maymi, E., & Aguilar, E. (2007). The use of open-access scheduling for the elderly. *Journal for Healthcare Quality*, 29(6), 45-48.
- Chi, R. C., Reiber, G. E., & Neuzil, K. M. (2006). Influenza and pneumococcal vaccination in older veterans: Results from the behavioral risk factor surveillance system. *Journal of the American Geriatrics Society*, 54, 217-223. doi: 10.1111/j.1532-5415.2005.00577.x
- Choi, J. C., Bakaeen, F. G., Huh, J., Dao, T. K., LeMaire, S. A., Coselli, J. S., & Chu, D. (2009). Outcomes of coronary surgery at a Veterans Affairs hospital versus other hospitals. *Journal of Surgical Research*, 156, 150-154. doi: 10.1016/j.jss.2009.03.041
- Chokshi, D. A., & Sommers, B. D. (2014). Universal health coverage for US veterans: A goal within reach. *Lancet*. doi: 10.1016/S0140-6736(14)61254-X

## Assessment B (Health Care Capabilities)

---

- Chumbler, N. R, Vogel, W. B., Garel, M., Qin, H., Kobb, R., & Ryan, P. (2005). Health services utilization of a care coordination/home-telehealth program for veterans with diabetes: A matched-cohort study. *Journal of Ambulatory Care Management*, 28(3), 230-240.
- Chumbler, N. R., Haggstrom, D., & Saleem, J. J. (2011). Implementation of health information technology in Veterans Health Administration to support transformational change: Telehealth and personal health records. *Medical Care*, 49, S36-S42.
- Clancy, Carolyn M. (2014, October 9). Independent assessment of Department of Veterans Affairs health care delivery systems and management processes (memorandum to Department of Veterans Affairs leadership).
- CMS—See Centers for Medicare & Medicaid Services.
- Cohen J. (1998). *Statistical power analysis for the behavioral sciences*. 2nd ed. Lawrence Erlbaum Associates.
- Concannon, T. W., Griffith, J. L., Kent, D. M., Normand, S. L., Newhouse, J. P., Atkins, J., Beshansky, J. R., & Selker, H. P. (2009). Elapsed time in emergency medical services for patients with cardiac complaints: Are some patients at greater risk for delay? *Circulation. Cardiovascular Quality and Outcomes*, 2(1), 9-15. doi: 10.1161/CIRCOUTCOMES.108.813741
- Concannon, T. W., Kent, D. M., Normand, S. L., Newhouse, J. P., Griffith, J. L., Cohen, J., Beshansky, J. R., Wong, J. B., Aversano, T., & Selker, H. P. (2010). Comparative effectiveness of ST-segment-elevation myocardial infarction regionalization strategies. *Circulation. Cardiovascular Quality and Outcomes*, 3(5), 506-513. doi: 10.1161/CIRCOUTCOMES.109.908541
- Concannon, T. W., Kent, D. M., Normand, S. L., Newhouse, J. P., Griffith, J. L., Ruthazer, R., Beshansky, J. R., Wong, J. B., Aversano, T., & Selker, H. P. (2008). A geospatial analysis of emergency transport and inter-hospital transfer in ST-segment elevation myocardial infarction. *American Journal of Cardiology*, 101(1), 69-74. doi: 10.1016/j.amjcard.2007.07.050
- Concannon, T. W., Nelson, J., Goetz, J., & Griffith, J. L. (2012). A percutaneous coronary intervention lab in every hospital? *Circulation. Cardiovascular Quality and Outcomes*, 5(1), 14-20. doi: 10.1161/CIRCOUTCOMES.111.963868
- Concannon, T. W., Nelson, J., Kent, D. M., & Griffith, J. L. (2013). Evidence of systematic duplication by new percutaneous coronary intervention programs. *Circulation. Cardiovascular Quality and Outcomes*, 6(4), 400-408. doi: 10.1161/CIRCOUTCOMES.111.000019
- Congressional Budget Office. (2005). Prices for brand-name drugs under selected federal programs.
- Congressional Budget Office. (2011). Potential costs of health care for veterans of recent and ongoing U.S. Military operations.
- Congressional Budget Office. (2014). H.R. 3230, Veterans access to care act of 2014.
- Congressional Budget Office. (2015). H.R. 216 Department of Veterans Affairs budget planning reform act of 2015.
- Cox, R. M., Alexander, G. C., & Gray, G. A. (2005). Hearing aid patients in private practice and public health (Veterans Affairs) clinics: Are they different? *Ear and Hearing*, 26, 513-528.
- Creech, C., Filter, M., Bowman, S. (2011). *Comparing patient satisfaction with nurse practitioner and physician delivered care*. Conference Poster. Poster presented at: 26th Annual American Academy of Nurse Practitioners Conference, Las Vegas, NV.

- Cryer, L., Shannon, S. B., Van Amsterdam, M., & Leff, B. (2012). Costs for 'hospital at home' patients were 19 percent lower, with equal or better outcomes compared to similar inpatients. *Health Affairs*, 31(6), 1237-1243.
- Culpepper, W. J., Cowper-Ripley, D., Litt, E. R., McDowell, T. Y., & Hoffman, P. M. (2010). Using geographic information system tools to improve access to MS specialty care in Veterans Health Administration. *Journal of Rehabilitation Research and Development*, 47(6), 583-591.
- Dall, T., Sen, N., Zhang, Y., Sahai, N., & Chen, J. (2009). The impact of improved colorectal cancer screening rates on adequacy of future supply of gastroenterologists. The Lewin Group.
- Darkins, A. (2013). "Telehealth Services in the Department of Veterans Affairs (VA)." from [http://assets.fiercemarkets.net/public/sites/govit/vatelehealthpresentation\\_adam\\_darkins.pdf](http://assets.fiercemarkets.net/public/sites/govit/vatelehealthpresentation_adam_darkins.pdf)
- Darkins, A. (2014). The growth of telehealth services in the Veterans Health Administration between 1994 and 2014: A study in the diffusion of innovation. *Telemedicine and e-Health*, 20(9), 761-768.
- Darkins, A., Cruise, C., Armstrong, M., Peters, J., & Finn, M. (2008). Enhancing access of combat-wounded veterans to specialist rehabilitation services: The VA polytrauma telehealth network. *Archives of Physical Medicine and Rehabilitation*, 89(1), 182-187.
- data.gov. (2014). Average expenditures per patient by HealthCare Priority Group: FY00 to FY13. Retrieved from <http://catalog.data.gov/dataset/average-expenditures-per-patient-by-healthcare-priority-group-fy00-to-fy13>
- Dedoose Version 5.0.11. (2014). Web application for managing, analyzing, and presenting qualitative and mixed method research data. Los Angeles, CA: SocioCultural Research Consultants, LLC.
- Defense Health Agency. (2015). *Evaluation of the TRICARE Program: Access, cost, and quality: Fiscal year 2015 report to congress*. Falls Church, VA
- DeSalvo, K. B., Bowdish, B. E., Alper, A. S., Grossman, D. M., & Merrill, W. W. (2000). Physician practice variation in assignment of return interval. *Archives of Internal Medicine*, 160(2), 205-208.
- Dierick-van Daele, A., Spreeuwenberg, C., Derckx, E.WCC, Metsemakers, Job FM, & Vrijhoef, B. JM. (2008). Critical appraisal of the literature on economic evaluations of substitution of skills between professionals: A systematic literature review. *Journal of Evaluation in Clinical Practice*, 14(4), 481-492.
- Dittus, R. S., & Tierney, W. M. (1987). *Scheduling follow-up office visits-physician variability*. Paper presented at the Clinical Research.
- Domine, L. P., Siegal, M., Zicafoose, B., Antal-Otong, D., & Stone, J. T., (1998). Survey of APNs employed by the Veterans Health Administration (VHA). *Nurse Practitioner*, 23(7), 16-24.
- Dominick, K. L., Golightly, Y. M., & Jackson, G. L. (2006). Arthritis prevalence and symptoms among US non-veterans, veterans, and veterans receiving Department of Veterans Affairs Healthcare. *Journal of Rheumatology*, 33, 348-354.
- Duggan, M. (2004). Does contracting out increase the efficiency of government programs? Evidence from Medicaid HMOs. *Journal of Public Economics*, 88, 2549-2572. doi: 10.1016/j.jpubeco.2003.08.003
- Dulisse, B., & Cromwell, J. (2010). No harm found when nurse anesthetists work without supervision by physicians. *Health Affairs*, 29(8), 1469-1475.

- Dunagan, W. C., Littenberg, B., Ewald, G. A., Jones, C. A., Emery, V. B., Waterman, B. M., Silverman, D. C., & Rogers, J. G. (2005). Randomized trial of a nurse-administered, telephone-based disease management program for patients with heart failure. *Journal of Cardiac Failure*, 11(5), 358-365.
- Dunn, A. S. (2007). A Survey of chiropractic academic affiliations within the Department of Veterans Affairs health care system. *Journal of Chiropractic Education*, 21(2), 138-143.
- e Tecnologica, Ricerca Scientifica. (2003). Analysis of user-satisfaction with the use of a teleconsultation system in oncology. *MED. INFORM*, 28(2), 73-84.
- Elliott, M. N., Zaslavsky, A. M., Goldstein, E., Lehrman, W., Hambarsoomians, K., Beckett, M. K., et al. (2009). Effects of survey mode, patient mix, and nonresponse on CAHPS hospital survey scores. *Health Services Research*, 44(2 Pt 1), 501-518.
- Emont, S. (2013). Measuring the impact of patient portals: What the literature tells us. 2011. *California HealthCare Foundation*.
- Evans, N. (2014, July 23). Improving patient-provider communication and disease management. Retrieved June 1, 2015, from <http://www.blogs.va.gov/VAntage/14805/improving-patient-provider-communication-and-disease-management/>
- Fairman, J. (2008). Making room in the clinic: Nurse practitioners and the evolution of modern health care. 1st ed. Piscataway, NJ: Rutgers University Press.
- Faris, J. A., Douglas, M. K., Maples, D. C., Berg, L. R., & Thrailkill, A. (2010). Job satisfaction of advanced practice nurses in the Veterans Health Administration. *Journal of the American Academy of Nurse Practitioners*, 22(1), 35-44.
- Federal Register. (2014). Expanded access to non-VA care through the Veterans Choice Program: Interim final rule, 214. C.F.R.
- Fihn, S. D., Vaughan-Sarrazin, M., Lowy, E., Popescu, I., Maynard, C., Rosenthal, G. E., Sales, A. E., Runsl=feld, J., Piñeros, S., McDonell, M. B., Helfrich, C. D., Rusch, R., Jesse, R., Almenoff, P., Fleminhg, B., & Kussman, M. (2009). Declining mortality following acute myocardial infarction in the Department of Veterans Affairs health care system. *BMC Cardiovascular Disorders*, 9, 44. doi: 10.1186/1471-2261-9-44
- Fine, S. A., & Cronshaw, S. F. (1999). *Functional job analysis: A foundation for human resources management*: Psychology Press.
- Fink, A. S. (2006). Veterans Administration physician compensation: Past, present, future. *American Journal of Surgery*, 192(5), 559-564.
- Fink, A. S., Hutter, M.M., Campbell, D. C., Henderson, W. G., Mosca, C., & Khuri, S. F. (2007). Comparison of risk-adjusted 30-day postoperative mortality and morbidity in Department of Veterans Affairs hospitals and selected university medical centers: General surgical operations in women. *Journal of the American College of Surgeons*, 204, 1127-1136. doi: 10.1016/j.jamcollsurg.2007.02.060
- Fletcher, C. E., Jill Baker, S., Copeland, L. A., Reeves, P. J., & Lowery, J. C. (2007). Nurse practitioners' and physicians' views of NPs as providers of primary care to veterans. *Journal of Nursing Scholarship*, 39(4), 358-362.
- Fortney, J. C., Burgess, J. F., Bosworth, H. B., Booth, B. M., & Kaboli, P. J. (2011). A re-conceptualization of access for 21st century healthcare. *Journal of General Internal Medicine*, 26(2), 639-647. doi: 10.1007/s11606-011-1806-6



## Assessment B (Health Care Capabilities)

---

- Fortney, J. C., Maciejewski, M.L., Warren, J. J., & Burgess, J. F. (2005). Does improving geographic access to VA primary care services impact patients' patterns of utilization and costs? *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 42(1), 29-42.
- Fortney, J. C., Steffick, D.E., Burgess, J. F., Maciejewski, M. L., & Petersen, L. A. (2005). Are primary care services a substitute or complement for specialty and inpatient services? *Health Services Research*, 40(5p1), 1422-1442.
- Frakt, A. B., Pizer, S. D., & Feldman, R. (2012). Should Medicare adopt the Veterans health administration formulary? *Health Economics*, 21, 485–495.
- Frayne, S. M., & Mattocks, K. M. (2012). *Sourcebook: Women veterans in the Veterans Health Administration*. (Vol. 2: Sociodemographics and Use of VHA and Non-VA Care (Fee)).
- French, D. D., & Margo, C. E. (2012). Short-term mortality following cataract surgery: Comparison of Veterans Health Administration and Medicare outcomes. *Ophthalmic Epidemiology*, 19, 144-148. doi: 10.3109/09286586.2012.680530
- French, D. D., Bradham, D. D., Campbell, R. R., Haggstrom, D. A., Myers, L. J., Chumbler, N. R., & Hagan, M. P. (2012a). Factors associated with program utilization of radiation therapy treatment for VHA and Medicare dually enrolled patients. *Journal of Community Health*, 37(4), 882-887.
- French, D. D., Margo, C. E., & Campbell, R. R. (2012b). Comparison of complication rates in veterans receiving cataract surgery through the Veterans Health Administration and Medicare. *Medical Care*, 50, 620-626. doi: 10.1097/MLR.0b013e31824def67
- Friedman, S. A., Frayne, S. M., Berg, E., Hamilton, A. B., Washington, D. L., Saechao, F., et al. (2015). Travel time and attrition from VHA care among women veterans: How far is too far? *Medical Care*, 53(4 Suppl 1), S15-22.
- Fye, W. B. (2004). Introduction: The origins and implications of a growing shortage of cardiologists. *Journal of the American College of Cardiology*, 44(2), 221-232.
- GAO—See U.S. Government Accountability Office.
- Garcia, H. A., Mcgeary, C. A., Mcgeary, D. D., Finley, E. P., & Peterson, A. L. (2014). Burnout in Veterans Health Administration mental health providers in posttraumatic stress clinics. *Psychological Services*, 11(1), 50.
- Gellad, W. F., Donohue, J. M., Zhao, X., Mor, M. K., Thorpe, C. T., Smith, J., Good, C. B., Fine, M. J., & Morden, N. E. (2013). Brand-name prescription drug use among Veterans Affairs and Medicare Part D patients with diabetes: A national cohort comparison. *Annals of Internal Medicine*, 159, 105-114. doi: 10.7326/0003-4819-159-2-201307160-00664
- Gibson, S. (2015, March 24). Statement of the Honorable Sloan Gibson, Deputy Secretary of Veterans Affairs before the Veterans' Affairs Committee of the U.S. Senate.
- Gill, J.S., Hussain, S., Rose, C., Hariharan, S., & Tonelli, M. (2007). Access to kidney transplantation among patients insured by the United States Department of Veterans Affairs. *Journal of the American Society of Nephrology*, 18, 2592-2599. doi: 10.1681/asn.2007010050
- Gilman, M., & Stensland, J. (2013). Telehealth and Medicare: Payment policy, current use, and prospects for growth. *Medicare & Medicaid Research Review*, 3(4).

- Glasgow, R. E., Jackson, H. H., Neumayer, L., Schiffner, T. L., Khuri, S. F., Henderson, W. G., & Mulvihill, S. J. (2007). Pancreatic resection in Veterans Affairs and selected university medical centers: Results of the patient safety in surgery study. *Journal of the American College of Surgeons*, 204, 1252-1260. doi: 10.1016/j.jamcollsurg.2007.03.015
- Goldberg, D. S., French, B., Forde, K. A., Groeneveld, P. W., Bittermann, T., Backus, L., Halpern, S. D., & Kaplan, D. E. (2014). Association of distance from a transplant center with access to waitlist placement, receipt of liver transplantation, and survival among US veterans. *Journal of the American Medical Association*, 311(12), 1234-1243. doi: 10.1001/jama.2014.2520
- Goldschmidt, L. (1998). Telemedicine and information technology at the Veterans Administration Palo Alto health care system: Serving patient care. *Effective Clinical Practice*, 1(2), 87-89.
- Goldstein, M. M., & Rein, A. L. (2010, March 23). Consumer consent options for electronic health information exchange: Policy considerations and analysis. Retrieved May 26, 2015, from <http://www.healthit.gov/sites/default/files/choicemodelfinal032610.pdf>
- Goldzweig, C. L., Orshansky, G., Paige, N. M., Towfigh, A. A., Haggstrom, D. A., Miake-Lye, I., Beroes, J. M., & Shekelle, P. G. (2013). Electronic patient portals: Evidence on health outcomes, satisfaction, efficiency, and attitudes: A systematic review. *Annals of Internal Medicine*, 159(10), 677-687. doi: 10.7326/0003-4819-159-10-201311190-00006
- Gonzales, R., Camargo, C.A., MacKenzie, T., Kersey, A.S., Maselli, J., Levin, S. K., McCulloch, C. E., & Metlay, J. P. (2006). Antibiotic treatment of acute respiratory infections in acute care settings. *Academic Emergency Medicine*, 13, 288-294. doi: 10.1197/j.aem.2005.10.016
- Gordon, G. H., & Webb, D. W. (1984). Effect of psychosocial factors on medical outpatient return visit intervals. *Clinical Research*, 32(31).
- Gordon, G. H., Tyler, J., & Friis, R. (1984). Factors influencing return visit intervals in a medical outpatient-clinic. *Clinical Research*, 32(1).
- Greenberg, G. A., Myer, J., Sernyak, M., & Rosenheck, R. A. (2006). Access of behavioral health patients to prescribing professionals. *General Hospital Psychiatry*, 28(3), 249-254. doi: 10.1016/j.genhosppsych.2006.02.004
- Griffin, K. F., & Swan, B. A. (2006). Linking nursing workload and performance indicators in ambulatory care. *Nursing economic\$, 24(1)*, 41-44.
- Groth, S. W., Norsen, L., & Kitzman, H. (2010). Long-term outcomes of advanced practice nursing. In E. M. Sullivan-Marx, D. O. McGivern, J. A. Fairman, and S. A. Greenberg (Eds.). *Nurse practitioners: Evolution and future of advanced practice*. New York: Springer. 93-110.
- Grumbach, K., Hart, L. G., Mertz, E., Coffman, J., & Palazzo, L. (2003). Who is caring for the underserved? A comparison of primary care physicians and nonphysician clinicians in California and Washington. *Annals of Family Medicine*, 1(2), 97-104.
- Guillén, S., Arredondo, M.T., Traver, V., Valero, M.A., Martin, S., Traganitis, A., Mantzourani, E., Totter, A., Karefilaki, K., Paramythi, A., Stephanidis, C., & Robinson, S. (2002). User satisfaction with home telecare based on broadband communication. *Journal of Telemedicine and Telecare*, 8(2), 81-90.
- Gustke, S. S., Balch, D. C., West, V.L., & Rogers, L. O. (2000). Patient satisfaction with telemedicine. *Telemedicine Journal*, 6(1), 5-13.

- Hall, B. L., Hirbe, M., Yan, Y., Khuri, S. F., Henderson, W. G., & Hamilton, B. H. (2007). Thyroid and parathyroid operations in veterans affairs and selected university medical centers: Results of the patient safety in surgery study. *Journal of the American College of Surgeons*, 204, 1222-1234. doi: 10.1016/j.jamcollsurg.2007.02.073
- Hamilton, A. B., Frayne, S.M., Cordasco, K. M., & Washington, D. L. (2013). Factors related to attrition from VA healthcare use: findings from the National Survey of Women Veterans. *Journal of General Internal Medicine*, 28 Suppl 2, S510-516. doi: 10.1007/s11606-013-2347-y
- Hans P. (2014). Telehealth — making care accessible and patient-centered. Retrieved from <http://www.va.gov/health/newsfeatures/2014/June/Connecting-Veterans-with-Telehealth.asp#top>
- Harris, K. M., Galasso, J. P., & Eibner, C. (2008). *Review and evaluation of the VA Enrollee health care projection model*. Santa Monica, CA: RAND Corporation.
- Hartzband, P., & Groopman, J. (2008). Off the record—avoiding the pitfalls of going electronic. *New England Journal of Medicine*, 358(16), 1656-1657.
- Hatem, M., Sandall, J., Devane, D., Soltani, H., & Gates, S. (2008). Midwife-led versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews*, (4):CD004667.
- Haun, J. N., Lind, J. D., Shimada S. L., Martin, T. L., Gosline, R. M., Antinori, N., Stewart, M., & Simon, S. R. (2014). Evaluating user experiences of the secure messaging tool on the Veterans Affairs' patient portal system. *Journal of Medical Internet Research*, 16(3):e75.
- Hausmann, L. R., Jeong, K., Bost, J. E., Kressin, N. R., & Ibrahim, S. A. (2009). Perceived racial discrimination in health care: A comparison of Veterans Affairs and other patients. *American Journal of Public Health*, 99 Suppl 3, S718-724. doi: 10.2105/ajph.2008.150730
- Hays, H., Carroll, M., Ferguson, S., Fore, C., & Horton, M. (2014). The Success of telehealth care in the Indian Health Service. *The Virtual Mentor: VM*, 16(12), 986.
- Health Resources and Service Administration. (2013). *Projecting the supply and demand for primary care practitioners through 2020*. Washington, DC: Department of Health and Human Services.
- Health Services Research & Development Service. (2007). *Racial and ethnic disparities in the VA healthcare system: A systematic review*. Washington, DC: Department of Veterans Affairs.
- Healthcare Talent Management, Workforce Management & Consulting Office, & Veterans Health Administration. (2014). *Interim workforce and succession strategic plan*.
- Hebenstreit, C., Madden, E., & Maguen, S. (2014). Latent classes of PTSD symptoms in Iraq and Afghanistan female veterans. *Journal of Affective Disorders*, 166, 132-138.
- Hebert, P. L., Sisk, J. E., Wang, J. J., Tuzzio, L., Casabianca, J. M., Chassin, M. R., Horowitz, C., & McLaughlin, M. A. (2008). Cost-effectiveness of nurse-led disease management for heart failure in an ethnically diverse urban community. *Annals of Internal Medicine*, 149(8), 540-548.
- Heisler, E. J., Panangala, S. V., & Bagalman, E. (2013). *Health care for rural veterans: The example of federally qualified health centers*. Washington, DC: Congressional Research Service.
- Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, 24(10), 997-1010.

- Helfrich, C. D., Dolan, E. D., Simonetti, J., Reid, R. J., Joos, S., Wakefield, B. J., Schectman, G., Stark, R., Fihn, S. D., & Harvey, H. B. (2014). Elements of team-based care in a patient-centered medical home are associated with lower burnout among VA primary care employees. *Journal of General Internal Medicine*, 29(2), 659-666.
- Henderson, W. G., Khuri, S. F., Mosca, C., Fink, A. S., Hutter, M. M., & Neumayer, L. A. (2007). Comparison of risk-adjusted 30-day postoperative mortality and morbidity in Department of Veterans Affairs hospitals and selected university medical centers: General surgical operations in men. *Journal of the American College of Surgeons*, 204, 1103-1114. doi: 10.1016/j.jamcollsurg.2007.02.068
- Hendricks, A. M., Lotchin, T. R., Hutterer, J., Swanson, J., Kenneally, K., & Decision Support System Cost Evaluation Work Group. (2003). Evaluating VA patient-level expenditures: decision support system estimates and Medicare rates. *Medical Care*, 41, 1111-1117. doi: 10.1097/01.MLR.0000068424.43061.CF
- Hendricks, A. M., Remler, D. K., & Prashker, M. J. (1999). More or less? Methods to compare VA and non-VA health care costs. *Medical Care*, 37, AS54-AS62.
- Hendricks, A., Whitford, J., & Nugent, G. (2003). What would VA nursing home care cost? Methods for estimating private sector payments. *Medical Care*, 41(6 Suppl), 1152-60. doi: 10.1097/01.MLR.0000068419.66983.9C
- Hendricks, A., Whitford, J., & Nugent, L. B. (2003). Estimating private sector payments for VA specialized inpatient care. *Medical Care*, 41(6 Suppl), 1143-51. doi: 10.1097/01.MLR.0000068418.55635.24
- Hicks, J. (2015, March 24). VA to change 40-mile rule for Veterans Choice Program, *Washington Post*.
- Hill, R. D., Luptak, M. K., Rupper, R. W., Bair, B., Peterson, C., Dailey, N., & Hicken, B.L. (2010). Review of Veterans Health Administration telemedicine interventions. *American Journal of Managed Care*, 16(12 Suppl HIT), e302-310.
- Hitchner, C. H., Richardson, C., Solomon, J. E., & Oppenheim, C. B. (1994). Integrated delivery systems: A survey of organizational models. *Wake Forest Law Review*, 29, 273.
- Ho, V., Heslin, M. J., Yun, H., & Howard, L. (2006). Trends in hospital and surgeon volume and operative mortality for cancer surgery. *Annals of Surgical Oncology*, 13(6), 851-858.
- Hogan, P. F., Seifert, R. F., Moore, C. S., & Simonson, B. E. (2010). Cost effectiveness analysis of anesthesia providers. *Nursing Economic\$*, 28(3), 150-169.
- Hoge, C. W., Auchterlonie, J. L., & Milliken, C. S. (2006). Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. *Journal of the American Medical Association*, 295(9), 1023-1032. doi: 10.1001/jama.295.9.1023
- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, 351(1), 13-22. doi: 10.1056/NEJMoa040603
- Honore, P. A., Simoes, E.J., Jones, W.J., & Moonesinghe, R. (2004). Practices in public health finance: An investigation of jurisdiction funding patterns and performance. *Journal of Public Health Management and Practice*, 10(5), 444-450.

- Hopp, F. P., Hogan, M.M., Woodbridge, P. A., & Lowery, J. C. (2007). The use of telehealth for diabetes management: A qualitative study of telehealth provider perceptions. *Implementation Science*, 2(1), 14-14.
- Hopp, F., Whitten, P., Subramanian, U., Woodbridge, P., Mackert, M., & Lowery, J. (2006). Perspectives from the Veterans Health Administration about opportunities and barriers in telemedicine. *Journal of Telemedicine and Telecare*, 12(8), 404-409.
- Horrocks, S., Anderson, E., & Salisbury, C. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *BMJ*, 324(7341), 819-823.
- Horwitz, J. R., Nichols, A., Nallamothu, B. K., Sasson, C., & Iwashyna, T. J. (2013). Expansion of invasive cardiac services in the United States. *Circulation*, 128(8), 803-810. doi: 10.1161/CIRCULATIONAHA.112.000836
- House Committee on Veterans Affairs. (2013). *Meeting patient care needs: Measuring the value of VA physician staffing standards*. Washington, DC: U.S. Government Printing Office.
- House Committee on Veterans Affairs. (2014). *Evaluating the capacity of the VA to care for veteran patients*. Washington, DC: U.S. Government Printing Office.
- Huang, P. Y, Yano, E. M., Lee, M. L., Chang, B. L., & Rubenstein, L. V. (2004). Variations in nurse practitioner use in Veterans Affairs primary care practices. *Health Services Research*, 39(4p1), 887-904.
- Hunkeler, E. M., Meresman, J. F., Hargreaves, W. A., Fireman, B., Berman, W. H., Kirsch, A. J., Groebe, J., Hurt, S. W., Braden, P., Getzell, M., Feigenbaum, P. A., Peng, T., & Salzer, M., (2000). Efficacy of nurse telehealth care and peer support in augmenting treatment of depression in primary care. *Archives of Family Medicine*, 9(8), 700.
- Hutter, M. M., Lancaster, R. T., Henderson, W. G., Khuri, S. F., Mosca, C., Johnson, R. G., Abbott, W. M., & Cambria, R. P. (2007). Comparison of risk-adjusted 30-day postoperative mortality and morbidity in Department of Veterans Affairs hospitals and selected university medical centers: Vascular surgical operations in men. *Journal of the American College of Surgeons*, 204, 1115-1126. doi: 10.1016/j.jamcollsurg.2007.02.066
- Hynes, D. M., Koelling, K., Stroupe, K., Arnold, N., Mallin, K., Sohn, M.-W., Weaver, F. M., Manheim, L., & Kok, L. (2007). Veterans' access to and use of Medicare and Veterans Affairs health care. *Medical Care*, 45(3), 214-223.
- Hynes, D. M., Stroupe, K. T., Fischer, M.J., Reda, D. J., Manning, W., Browning, M. M., Huo, Z., Saben, K., Kaufman, J. S. (2011). Comparing VA and private sector healthcare costs for end-stage renal disease. *Medical Care*, 50, 161-170. doi: 10.1097/MLR.0b013e31822dcf15
- Hynes, D.M., Stroupe, K T., Kaufman, J.S., Reda, D J., Peterman, A., Browning, M. M., Huo, Z., & Sorbara, D. (2006). Adherence to guidelines for ESRD anemia management. *American Journal of Kidney Diseases*, 47, 455-461. doi: 10.1053/j.ajkd.2005.11.012
- Hysong, S. J., Best, R. G., & Moore, F. I. (2007). Are we under-utilizing the talents of primary care personnel? A job analytic examination. *Implementation Science*, 2(1), 10.
- ICF International. (2013). *Report on 2013 survey of veteran enrollees' health and reliance upon VA*. Burlington, VT 05401.
- ICF International. (2013b). *VHA survey of veteran enrollees' health and reliance upon VA methodology report 2013*.

- Institute for Healthcare Improvement. (2015, May 19). Measures: Third next available appointment. Retrieved from <http://www.ihl.org/resources/Pages/Measures/ThirdNextAvailableAppointment.aspx>
- Institute for Veterans and Military Families. (2013). A national veterans strategy: The economic, social and security imperative.
- Institute of Medicine Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing. (2011). *The future of nursing: Leading change, advancing health*. Washington, DC: National Academies Press.
- Institute of Medicine. (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academies Press.
- Institute of Medicine. (2014). *Treatment for posttraumatic stress disorder in military and veteran populations: Final assessment*. Washington, DC: The National Academies Press.
- Institute of Medicine. (2015). *Vital signs: Core metrics for health and health care progress*. Washington, DC: The National Academies Press.
- Jackson, G. L., Lee, S-Y D., Edelman, D., Weinberger, M., & Yano, E. M. (2011). Employment of mid-level providers in primary care and control of diabetes. *Primary Care Diabetes*, 5(1), 25-31.
- Janca, A. (2000). Telepsychiatry: An update on technology and its applications. *Current Opinion in Psychiatry*, 13(6), 591-597.
- Jauhar, S. (2014). Nurses are not doctors, *New York Times*. Retrieved from [http://www.nytimes.com/2014/04/30/opinion/nurses-are-not-doctors.html?\\_r=2](http://www.nytimes.com/2014/04/30/opinion/nurses-are-not-doctors.html?_r=2)
- Javorsky, E., Robinson, A., & Boer, K.A. (2014). Evidence-based guidelines to determine follow-up intervals: A call for action. *American Journal Of Managed Care*, 20(1), 17.
- Jayakumar, A. (2015, March 8). Health care for veterans goes high tech, *Washington Post*. Retrieved from [http://www.washingtonpost.com/business/on-it/health-care-for-veterans-goes-high-tech/2015/03/07/168d74d0-c12e-11e4-9271-610273846239\\_story.html](http://www.washingtonpost.com/business/on-it/health-care-for-veterans-goes-high-tech/2015/03/07/168d74d0-c12e-11e4-9271-610273846239_story.html)
- Jha, A. K., Wright, S. M., & Perlin, J. B. (2007). Performance measures, vaccinations, and pneumonia rates among high-risk patients in Veterans Administration health care. *American Journal of Public Health*, 97, 2167-2172. doi: 10.2105/ajph.2006.099440
- Johnson, R. G., Wittgen, C. M., Hutter, M. M., Henderson, W. G., Mosca, C., & Khuri, S. F. (2007). Comparison of risk-adjusted 30-day postoperative mortality and morbidity in Department of Veterans Affairs hospitals and selected university medical centers: Vascular surgical operations in women. *Journal of the American College of Surgeons*, 204, 1137-1146. doi: 10.1016/j.jamcollsurg.2007.02.059
- Joint Commission. (2015). Performance measurement for hospitals. Retrieved from [http://www.jointcommission.org/accreditation/performance\\_measurementoryx.aspx](http://www.jointcommission.org/accreditation/performance_measurementoryx.aspx)
- Kaiser Family Foundation & Health Research & Educational Trust. (2014). *Employer Health Benefits Annual Survey*. Menlo Park, CA, and Chicago, IL
- Kalist, D. E., & Spurr, S. J. (2004). The effect of state laws on the supply of advanced practice nurses. *International journal of health care finance and economics*, 4(4), 271-281.

- Kashner, T. M., Muller, A., Richter, E., Hendricks, A., Lukas, C. V., & Stubblefield, D. R. (1998). Private health insurance and veterans use of Veterans Affairs care. RATE Project Committee. Rate Alternative Technical Evaluation. *Medical Care*, 36(7), 1085-1097.
- Kavanagh, S. J., & Yellowlees, P. M. (1995). Telemedicine—clinical applications in mental health. *Australian Family Physician*, 24(7), 1242-1247.
- Keating, N. L., Landrum, M. B., Lamont, E. B., Bozeman, S. R., Krasnow, S. H., Shulman, L. N., Brown, J. R., Earle, C. C., Oh, W. K., Rabin, M., & McNeil, B. J. (2011). Quality of care for older patients with cancer in the Veterans Health Administration versus the private sector: A cohort study. *Annals of Internal Medicine*, 154, 727-736. doi: 10.7326/0003-4819-154-11-201106070-00004
- Keating, N. L., Landrum, M. B., Lamont, E. B., Earle, C. C., Bozeman, S. R., & McNeil, B. J. (2010). End-of-life care for older cancer patients in the Veterans Health Administration versus the private sector. *Cancer*, 116, 3732-3739. doi: 10.1002/cncr.25077
- Keenan, K., Hayen, A., Neal, B. C., & Irwig, L. (2009). Long term monitoring in patients receiving treatment to lower blood pressure: Analysis of data from placebo controlled randomised controlled trial. *BMJ*, 338.
- Kehle, S. M., Greer, N., Rutks, I., & Wilt, T. (2011). Interventions to improve veterans' access to care: A systematic review of the literature. *Journal Of General Internal Medicine*, 26(2), 689-696.
- Kehle, S. M., Reddy, M. K., Ferrier-Auerbach, A. G., Erbes, C. R., Arbisi, P. A., & Polusny, M. A. (2011). Psychiatric diagnoses, comorbidity, and functioning in National Guard troops deployed to Iraq. *Journal of Psychiatric Research*, 45(1), 126-132. doi: 10.1016/j.jpsychires.2010.05.013
- Keyhani, S., Ross, J. S., Hebert, P., Dellenbaugh, C., Penrod, J. D., & Siu, A. L. (2007). Use of preventive care by elderly male veterans receiving care through the Veterans Health Administration, Medicare fee-for-service, and Medicare HMO plans. *American Journal of Public Health*, 97, 2179-2185. doi: 10.2105/ajph.2007.114934
- Kilo, C. M., Triffletti, P., Tantau, C., & Murray, M. (1999). Improving access to clinical offices. *Journal of Medical Practice Management*, 16(3), 126-132.
- Kizer, K. W., & Norby, R.B. (1998). Internal practice barriers for non-physician practitioners in the veterans healthcare system. *Journal of Allied Health*, 27(4), 183-187.
- Klein, M. B., Kramer, C. B., Nelson, J., Rivara, F. P., Gibran, N. S., & Concannon, T. (2009). Geographic access to burn center hospitals. *Journal of the American Medical Association*, 302(16), 1774-1781. doi: 10.1001/Journal of American Medical Association.2009.1548
- Kleiner, M. M., Marier, A., Park, K. W., & Wing, C. (2014). Relaxing occupational licensing requirements: analyzing wages and prices for a medical service. National Bureau of Economic Research.
- Kramer, B. J., Jouldjian, S., Wang, M., Dang, J., Mitchell, M. N., Finke, B., & Saliba, D. (2011). Do correlates of dual use by American Indian and Alaska Native Veterans operate uniformly across the Veterans Health Administration and the Indian Health Service? *Journal of General Internal Medicine*, 26(2), 662-668.
- Kravitz, R. L., Greenfield, S., Rogers, W., Manning, W. G., Zubkoff, M., Nelson, E. C., Tarlov, A. R., & Ware, J. E. (1992). Differences in the mix of patients among medical specialties and systems of care: results from the medical outcomes study. *Journal of the American Medical Association*, 267(12), 1617-1623.

- Krein, S. L., Hofer, T. P., Kowalski, C. P., Olmsted, R. N., Kauffman, C. A., Forman, J. H., Banaszak-Holl, J., & Saint, S. (2007). Use of central venous catheter-related bloodstream infection prevention practices by US hospitals. *Mayo Clinic Proceedings*, 82, 672-678. doi: 10.4065/82.6.672
- Kruk, M. E., & Freedman, L. P. (2008). Assessing health system performance in developing countries: A review of the literature. *Health Policy*, 85(3), 263-276. doi: 10.1016/j.healthpol.2007.09.003
- Kruse, C. S., Bolton, K., & Freriks, G. (2015). The effect of patient portals on quality outcomes and its implications to meaningful use: a systematic review. *Journal of Medical Internet Research*, 17(2), e44. doi: 10.2196/jmir.3171
- Kuzmak, P. M., & Dayhoff, R. E. (1998). The Department of Veterans Affairs integration of imaging into the healthcare enterprise using the vista hospital information system and digital imaging and communications in medicine. *Journal of Digital Imaging*, 11(2), 53-64.
- Laberge, A., Weech-Maldonado, R., Johnson, C.E., Jia, H., & Dewald, L. (2008). Outsourcing veterans for long-term care: comparison of community and state veterans' nursing homes. *Journal of Health and Human Services Administration*, 30(4), 441-467.
- Lancaster, R. T., Tanabe, K. K., Schiffner, T. L., Warshaw, A. L., Henderson, W. G., Khuri, S. F., & Hutter, M. M. (2007). Liver resection in veterans affairs and selected university medical centers: Results of the patient safety in surgery study. *Journal of the American College of Surgeons*, 204, 1242-1251. doi: 10.1016/j.jamcollsurg.2007.02.069
- Landrum, M. B., Keating, N. L., Lamont, E. B., Bozeman, S. R., Krasnow, S. H., Shulman, L., Brown, J. R., Earle, C. C., Rabin, M., & McNeil, B. J. (2012). Survival of older patients with cancer in the Veterans Health Administration versus fee-for-service Medicare. *Journal of Clinical Oncology*, 30, 1072-1079. doi: 10.1200/jco.2011.35.6758
- Larcher B. (2002). An evaluation of the user and user satisfaction with a telemedicine system in oncology practice. *Journal of Telemedicine & Telecare*, 8, 28-30
- Laurant, M., Harmsen, M., Wollersheim, H., Grol, R., Faber, M., & Sibbald, B. (2009). The impact of nonphysician clinicians: Do they improve the quality and cost-effectiveness of health care services? *Medical Care Research and Review*, 66(6 suppl), 36S-89S.
- Laurant, M., Reeves, D., Hermens, R., Braspenning, J., Grol, R., & Sibbald, B. (2004). Substitution of doctors by nurses in primary care. *Cochrane Database System Review*, 2(2).
- Lautz, D. B., Jackson, T. D., Clancy, K. A., Escareno, C. E., Schiffner, T., Henderson, W. G., Livingston, E., Rogers, S. O., & Khuri, S. (2007). Bariatric operations in Veterans Affairs and selected university medical centers: Results of the patient safety in surgery study. *Journal of the American College of Surgeons*, 204, 1261-1272. doi: 10.1016/j.jamcollsurg.2007.04.003
- LaVela, S. L., Gering, J., Schectman, G., Locatelli, S. M., Weaver, F. M., & Davies, M. (2013). Improving the quality of telephone-delivered health care: A national quality improvement transformation initiative. *Family Practice*, 30(5), 533-540. doi: 10.1093/fampra/cmt020
- Leeman, J., & Kilpatrick, K. (2000). Inter-organizational relationships of seven Veterans Affairs medical centers and their affiliated medical schools: Results of a multiple-case-study investigation. *Academic Medicine*, 75(10), 1015-1020.
- Lehner, L., Burgess, J., Hulst, D., & Stefos, T. (1996). Data and information requirements for the Department of Veterans Affairs resource allocation systems. *Medical Care*, 34, MS21-30.



- Lenz, E., Mundinger, M., Kane, R., Hopkins, S., & Lin, S. (2004). Primary care outcomes in patients treated by nurse practitioners or physicians: Two-year follow-up. *Medical Care Research and Review* 61(3):332-351.
- Lehrman, W. G., Elliott, M. N., Goldstein, E., Beckett, M. K., Klein, D. J., & Giordano, L. A. (2010). Characteristics of hospitals demonstrating superior performance in patient experience and clinical process measures of care. *Medical Care Research and Review*, 67(1), 38-55.
- Lerouge, C., & Garfield, M. J. (2013). Crossing the telemedicine chasm: Have the US barriers to widespread adoption of telemedicine been significantly reduced? *International Journal of Environmental Research and Public Health*, 10(12), 6472-6484.
- Lied, T. R., Sheingold, S. H., Landon, B. E., Shaul, J. A., & Cleary, P. D. (2003). Beneficiary reported experience and voluntary disenrollment in Medicare managed care. [research support, non-U.S. Gov't research support, U.S. Gov't, p.H.S.]. *Health Care Financing Review*, 25(1), 55-66.
- Lindsay, J. A, Kauth, M. R., Hudson, S., Martin, L. A., Ramsey, D. J., Daily, L., & Rader, J. (2015). Implementation of video telehealth to improve access to evidence-based psychotherapy for posttraumatic stress disorder. *Telemedicine and e-Health*.
- Liu, C. F., Bolkan, C., Chan, D., Yano, E. M., Rubenstein, L.V., & Chaney, E. F. (2008a). Dual use of VA and non-VA services among primary care patients with depression. *Journal of General Internal Medicine*, 24, 305-311. doi: 10.1007/s11606-008-0867-7
- Liu, C. F., Chapko, M. K., Perkins, M. W., Fortney, J., & Maciejewski, M. L. (2008b). The impact of contract primary care on health care expenditures and quality of care. *Medical Care Research and Review*, 65, 300-314. doi: 10.1177/1077558707313034
- Liu, C. F., Manning, W. G., Burgess, J. F., Jr., Hebert, P. L., Bryson, C. L., Fortney, J., Perkins, M., Sharp, N., & Maciejewski, M.L. (2011). Reliance on Veterans Affairs outpatient care by Medicare-eligible veterans. *Medical Care*, 49(10), 911-917. doi: 10.1097/MLR.0b013e31822396c5
- Lu, H., Trancik, E., Bailey, F. A., Ritchie, C., Rosenfeld, K., Shreve, S., Furman, C., Smith, D. Wolff, C., & Casarett, D. (2010). Families' perceptions of end-of-life care in Veterans Affairs versus non-Veterans Affairs facilities. *Journal of Palliative Medicine*, 13, 991-996. doi: 10.1089/jpm.2010.0044
- Luft, H. S., Bunker, J. P., & Enthoven, A. C. (1979). Should operations be regionalized? The empirical relation between surgical volume and mortality. *New England Journal of Medicine*, 301(25), 1364-1369.
- Luptak, M., Dailey, N., Juretic, M., Rupper, R., Hill, R., Hicken, B., & Bair, B. (2010). The care coordination home telehealth (ccht) rural demonstration project: A symptom-based approach for serving older veterans in remote geographical settings. *Rural and Remote Health*, 10(2), 1375.
- Lynch, C. P., Strom, J. L., & Egede, L. E. (2010). Effect of Veterans Administration use on indicators of diabetes care in a national sample of veterans. *Diabetes Technology & Therapeutics*, 12, 427-433. doi: 10.1089/dia.2009.0171
- Macdonald, L., Stubbe, M., Tester, R., Vernall, S., Dowell, T., Dew, Kevin, Kenealy, T., Sheridan, N., Docherty, B., Gray, L., & Raphael, D. (2013). Nurse-patient communication in primary care diabetes management: An exploratory study. *BMC Nursing*, 12(1), 20.

- Maciejewski, M.L., Perkins, M., L., Y.F., Chapko, M., Fortney, J.C., & Liu, C.F. (2007). Utilization and expenditures of veterans obtaining primary care in community clinics and VA medical centers: An observational cohort study. *BMC Health Services Research*, 7(1), 56.
- Maeda, J.L., Lee, K.M., & Horberg, M. (2014). Comparative health systems research among Kaiser Permanente and other integrated delivery systems: A systematic literature review. *Permanente Journal*, 18(3), 66-77. doi: 10.7812/TPP/13-159
- Massachusetts Medical Society. (2013). *2013 MMS patient access to care study*. Waltham, MA.
- Mays, G.P., Smith, S.A., Ingram, R.C., Racster, L.J., Lamberth, C.D., & Lovely, E.S. (2009). Public health delivery systems: evidence, uncertainty, and emerging research needs. *American Journal of Preventive Medicine*, 36(3), 256-265. doi: 10.1016/j.amepre.2008.11.008
- Mazmanian, A. (2014, February 13). How VA is driving telemedicine. Retrieved May 19, 2015, from <http://fcw.com/Articles/2014/02/13/How-VA-is-driving-telemedicine.aspx>
- Mbambo, S. (2003). A job analysis of selected health workers in a district health system in KwaZulu Natal-Part two: Job analysis of nurses in primary health care settings. *Curationis*, 26(3), 42-52.
- McAdams, M., Cannavo, L., & Orlander, J.D. (2014). A medical specialty e-consult program in a VA health care system. *Federal Practitioner*, 31(5), 26-31.
- McCarthy, J. F., Blow, F.C., Valenstein, M., Fischer, E. P., Owen, R.R., Barry, K. L, Hudson, T. J., & Ignacio, R.V. (2007). Veterans Affairs Health System and mental health treatment retention among patients with serious mental illness: Evaluating accessibility and availability barriers. *Health Services Research*, 42(3p1), 1042-1060.
- McCarthy, J. F., Piette, J. D., Fortney, J. C., Valenstein, M., & Blow, F. C. (2006). Outpatient visit chaining among patients with serious mental illness. *Medical Care*, 44(3), 257-264.
- McCarthy, J. F., Piette, J. D., Fortney, J. C., Valenstein, M., & Blow, F. C. (2006). Outpatient visit chaining among patients with serious mental illness. *Medical Care*, 44(3), 257-264.
- McDonald, R. (2015, February 11). Statement of the Honorable Robert a McDonald, Secretary of Veterans Affairs for presentation before the House Committee on Veteran's Affairs, budget request for fiscal year 2016.
- McFarland, L. V., Raugi, G. J., & Reiber, G. E. (2013). Primary care provider and imaging technician satisfaction with a teledermatology project in rural Veterans Health Administration clinics. *Telemedicine and e-Health*, 19(11), 815-825.
- McGuire, J., Rosenheck, R. A., & Kaspro, W. J. (2010). Patient and program predictors of 12-month outcomes for homeless veterans following discharge from time-limited residential treatment. *Administration and Policy in Mental Health*, 38, 142-154. doi: 10.1007/s10488-010-0309-9
- McIntyre Jr., D. J. (2015). President and CEO TriWest Healthcare Alliance Statement.
- Medical Society of the State of New York, testimony before the New York State Assembly Committee on Ways and Means and Senate Finance Committee on the Governor's Proposed Public Health Budget for State Fiscal Year 2014–2015, New York State Assembly (2015).
- Merritt Hawkins. (2014). *Physician appointment wait times and Medicaid and Medicare acceptance rates*. Irving, TX: Merritt Hawkins.

## Assessment B (Health Care Capabilities)

---

- Meyer, A. M., Davis, M., & Mays, G. P. (2012). Defining organizational capacity for public health services and systems research. *Journal of Public Health Management and Practice*, 18(6), 535-544. doi: 10.1097/PHH.0b013e31825ce928
- Military Construction and Veterans Affairs and Related Agencies, 111th Congress, *Senate* (2009). *Military Construction and Veterans Affairs and Related Agencies Appropriations for Fiscal Year 2010*,
- Miller, K. (2015, April 30). A \$15 billion cure can't fix veterans' care at U.S. Agency. *Bloomberg Politics*.
- Milliman, Inc. (2014, August 8). 2014 VA Enrollee Health Care Projection Model—Base Year 2013—2014 Model Documentation & Analysis. Milliman Health Practice Seattle.
- Mohler, K. L., Quaglietti, S. E., Broden, K., Jennings, A. F., Knox, S. C., Logan, M., Macy, M. L., Manning, S. K., Mendoza, D. C., Nejedly, M. P., & Thrailkill, A. M. (1998). Expanding nurse practitioner scope of practice within the Veterans Affairs Palo Alto Health Care System. *Clinical Excellence for Nurse Practitioners*, 2(5), 263-269.
- Mohr, D. C., Bauer, M. S., & Penfold, R. B. (2013). Changes in VA psychiatrists' attitudes about work environment and turnover during mental health service enhancement. *Psychiatric Services*, 64(6), 563-569.
- Mooney, S. E., & Weeks, W. B. (2007). Where do women veterans get their inpatient care? *Womens Health Issues*, 17, 367-373. doi: 10.1016/j.whi.2007.08.006
- Morgan, P. A., Abbott, D. H., McNeil, R. B., & Fisher, D. A. (2012). Characteristics of primary care office visits to nurse practitioners, physician assistants and physicians in United States Veterans Health Administration facilities, 2005 to 2010: A retrospective cross-sectional analysis. *Human Resources for Health*, 10(1), 42.
- Moulton, A. D., Halverson, P. K., Honore, P. A., & Berkowitz, B. (2004). Public health finance: a conceptual framework. *Journal of Public Health Management and Practice*, 10(5), 377-382.
- Mundell, B. F., Friedberg, M. W., Eibner, C., & Mundell, W. C. (2013). US military primary care: Problems, solutions, and implications for civilian medicine. *Health Affairs (Millwood)*, 32(11), 1949-1955. doi: 10.1377/hlthaff.2013.0586
- Mundinger, M. O., Kane, R. L., Lenz, E. R., Totten, A. M., Tsai, W. Y., Cleary, P. D., Friedewald, W. T., Siu, A. L., & Shelanski, M. L. (2000). Primary care outcomes in patients treated by nurse practitioners or physicians: A randomized trial. *Journal of the American Medical Association*, 283(1), 59-68.
- Murray, M., & Berwick, D. M. (2003). Advanced access: Reducing waiting and delays in primary care. *Journal of American Medical Association*, 289(8), 1035-1040.
- Murray, M., Bodenheimer, T., Rittenhouse, D., & Grumbach, K. (2003). Improving timely access to primary care: Case studies of the advanced access model. *Journal of the American Medical Association*, 289(8), 1042-1046.
- Nallamothu, B. K., Bates, E. R., Wang, Y., Bradley, E. H., & Krumholz, H. M. (2006). Driving times and distances to hospitals with percutaneous coronary intervention in the United States: Implications for prehospital triage of patients with ST-elevation myocardial infarction. *Circulation*, 113(9), 1189-1195. doi: 10.1161/CIRCULATIONAHA.105.596346
- National Alliance to End Homelessness. (2015). Fact sheet: veteran homelessness questions and answers on homelessness policy and research. 2.

- National Center for PTSD. (2014, April 11). Mobile App: PTSD Coach. Retrieved June 1, 2015, from <http://www.ptsd.va.gov/public/materials/apps/PTSDCoach.asp>
- National Committee for Quality Assurance. (2014). *Patient-centered medical home: PCMH 2011-PCMH 2014 crosswalk*. Retrieved from <http://www.ncqa.org/Programs/Recognition/Practices/PatientCenteredMedicalHomePCMH/PCMH2011PCMH2014Crosswalk.aspx>
- National Committee for Quality Assurance. (2015). State of health care quality report. Retrieved from <http://www.ncqa.org/ReportCards/HealthPlans/StateofHealthCareQuality.aspx>
- Nayar, P., Apenteng, B., Yu, F., Woodbridge, P., & Fetrick, A. (2013). Rural veterans' perspectives of dual care. *Journal of Community Health, 38*(1), 70-77.
- Naylor, M. D., & Kurtzman, E.T. (2010). The role of nurse practitioners in reinventing primary care. *Health Affairs, 29*(5), 893-899.
- Nazi, K. M., Turvey, C. L., Klein, D. M., Hogan, T. P., & Woods, S. S. (2014). VA opennotes: Exploring the experiences of early patient adopters with access to clinical notes. *Journal of the American Medical Informatics Association*, amiajnl-2014-003144.
- Nelson, K. H., Willens, H. J., & Hendel, R. C. (2011). Utilization of radionuclide myocardial perfusion imaging in two health care systems: Assessment with the 2009 ACCF/ASNC/AHA appropriateness use criteria. *Journal of Nuclear Cardiology, 19*, 37-42. doi: 10.1007/s12350-011-9467-8
- Nelson, K. M., Chapko, M. K., Reiber, G., & Boyko, E. J. (2005). The association between health insurance coverage and diabetes care; data from the 2000 Behavioral Risk Factor Surveillance System. *Health Services Research, 40*, 361-372. doi: 10.1111/j.1475-6773.2005.00361.x
- Nelson, K. M., Helfrich, C., Sun, H., Hebert, P. L., Liu, C.F. Dolan, E., Taylor, L., Wong, E., Maynard, C., Hernandez, S. E., Sanders, W., Randall, I., Curtis, I., Schectman, G., Stark, R., & Fihn, S. D. (2014). Implementation of the patient-centered medical home in the Veterans Health Administration: Associations with patient satisfaction, quality of care, staff burnout, and hospital and emergency department use. *Journal of the American Medical Association Internal Medicine, 174*(8), 1350-1358.
- Nelson, R. E., Hicken, B., West, A., & Rupper, R. (2012). The effect of increased travel reimbursement rates on health care utilization in the VA. *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association, 28*, 192-201. doi: 10.1111/j.1748-0361.2011.00387.x
- Nelson, K. M., Starkebaum, G. A., & Reiber, G. E. (2007). Veterans using and uninsured veterans not using Veterans Affairs (VA) health care. *Public Health Reports, 122*(1), 93-100.
- Neuman, P., Cubanski, J., & Damico, A. (2015). Medicare per capita spending by age and service: New data highlights oldest beneficiaries. *Health Affairs (Millwood), 34*(2), 335-339. doi: 10.1377/hlthaff.2014.1371
- Neuman, P., Stollo, M. K., Guterman, S., Rogers, W. H., Li, A., Rodday, A. M., & Safran, D. G. (2007). Medicare prescription drug benefit progress report: Findings from a 2006 national survey of seniors. *Health Affairs, 26*, w630-643. doi: 10.1377/hlthaff.26.5.w630

- Neumayer, L., Schiffner, T. L., Henderson, W. G., Khuri, S. F., & El-Tamer, M. (2007). Breast cancer surgery in Veterans Affairs and selected university medical centers: Results of the patient safety in surgery study. *Journal of the American College of Surgeons*, 204, 1235-1241. doi: 10.1016/j.jamcollsurg.2007.03.018
- New York State Assembly (2013). Nurse Practitioners Modernization Act, A04846.
- Newhouse, R.P., Stanik-Hutt, J., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., Wilson, R. F., Fountain, L., Steinwahcs, D. M., Heindel, L., & Weiner, J. P. (2011). Advanced practice nurse outcomes 1990–2008: A systematic review. *Nursing Economic\$, 29*(5), 1-21.
- Northern Virginia Technology Council. (2014). *Opportunities to improve the scheduling of medical exams for America's veterans: A report based on a review of VA's scheduling practices by the Northern Virginia Technology Council (NUTC)*.
- Nugent, G. N., Hendricks, A., Nugent, L., & Render, M. L. (2004). Value for taxpayers' dollars: What VA care would cost at Medicare prices. *Medical Care Research and Review*, 61(4), 495-508. doi: 10.1177/1077558704269795
- Nugent, G. N., Roselle, G., Nugent, L. B., & Render, M. L. (2003). Methods to determine private sector payment for VA outpatient services: Institutional payments to providers. *Medical Care*, 41(6 Suppl), I133-42. doi: 10.1097/01.MLR.0000068417.10120.C2
- Nugent, G., & Hendricks, A. (2003). Estimating private sector values for VA health care: An overview. *Medical Care*, 41(6 Suppl), I12-10. doi: 10.1097/01.MLR.0000068379.03474.2F
- Nugent, G., Grippen, G., Parris, Y. C., & Mitchell, M. (2003). Using the cost distribution report in estimating private sector payments: What adjustments should researchers make? *Medical Care*, 41(6 Suppl), I180-90. doi: 10.1097/01.MLR.0000068422.03255.6B
- Office of Management and Budget. (2015). *Detailed budget estimate, Department of Veterans Affairs, the appendix, budget of the United States government for Fiscal Year 2016* Retrieved from <https://www.whitehouse.gov/sites/default/files/omb/budget/fy2016/assets/vet.pdf>
- Ohman-Strickland, P. A., Orzano, J. A., Hudson, S. V., Solberg, L. I., DiCiccio-Bloom, B., O'Malley, D., Tallia, A. F., Balasubramanian, B. A., & Crabtree, B. F. (2008). Quality of diabetes care in family medicine practices: influence of nurse-practitioners and physician's assistants. *The Annals of Family Medicine*, 6(1), 14-22.
- OpenNotes. Who Is sharing notes? (n.d.). Retrieved May 12, 2015, from <http://www.myopennotes.org/who-is-sharing-notes/#VA>
- Oppel Jr., R. A., & Goodnough, A. (2014, May 29). Doctor shortage is cited in delays at VA hospitals, *New York Times*. Retrieved from [http://www.nytimes.com/2014/05/30/us/doctor-shortages-cited-in-va-hospital-waits.html?\\_r=1](http://www.nytimes.com/2014/05/30/us/doctor-shortages-cited-in-va-hospital-waits.html?_r=1)
- Page, N. (2006). Task overlap among primary care team members: an opportunity for system redesign? *Journal of Healthcare Management*, 51(5).
- Panangala, S. V. (2013). *Veterans' Medical Care: FY2014 Appropriations*. Washington, DC: Congressional Research Service.
- Panangala, S. V. (2014). *Veterans' Medical Care FY 2015 Appropriations*. Washington, DC: Congressional Research Service.

- Panangala, S. V., & Bagalman, E. (2014). Health care for veterans: Answers to frequently asked questions. Congressional Research Service.
- Panangala, S. V., & Mendez, B. H. P. (2010). *Veterans Health Administration: Community based outpatient clinics, CRS report for Congress*. Washington, DC: Congressional Research Service.
- Parikh, D. S., Inrig, J. K., Kipp, A., Szczech, L. A., McClellan, W., & Patel, U. D. (2011). Veterans more likely to start hemodialysis with an arteriovenous fistula. *Seminars in Dialysis*, 24, 570-575. doi: 10.1111/j.1525-139X.2011.00920.x
- Patterson, B. J., Kaboli, P. J., Tubbs, T., Alexander, B., & Lund, B. C. (2014). Rural access to clinical pharmacy services. *Journal of the American Pharmaceutical Association (2003)*, 54(5), 518-525. doi: 10.1331/JAPhA.2014.13248
- Patton, C. V., & Sawicki, D.S. (1993). *Basic methods of policy analysis and planning*. Englewood Cliffs, NJ: Prentice Hall.
- Pearl, R. (2014). Kaiser Permanente Northern California: Current experiences with Internet, mobile, and video technologies. *Health Aff (Millwood)*, 33(2), 251-257. doi: 10.1377/hlthaff.2013.1005
- Pearson, L. (2012). The Pearson Report. *The American Journal for Nurse Practitioners*.
- Penchansky, R., & Thomas, J. W. (1981). The concept of access: Definition and relationship to consumer satisfaction. *Medical Care*, 19(2), 127-140.
- Perlin, J. B., Kolodner, R. M., & Roswell, R. H. (2004). The Veterans Health Administration: quality, value, accountability, and information as transforming strategies for patient-centered care. *American Journal of Managed Care*, 10, 828–836.
- Petersen, H. (2014). Telehealth — making care accessible and patient-centered. Retrieved from <http://www.va.gov/health/newsfeatures/2014/June/Connecting-Veterans-with-Telehealth.asp#top>
- Petersen, L. A., Byrne, M. M., Daw, C. N., Hasche, J., Reis, B., & Pietz, K. (2010). Relationship between clinical conditions and use of Veterans Affairs health care among Medicare-enrolled veterans. *Health Services Research*, 45(3), 762-791. doi: 10.1111/j.1475-6773.2010.01107.x
- Petrakis, I. L., Rosenheck, R., & Desai, R. (2011). Substance use comorbidity among veterans with posttraumatic stress disorder and other psychiatric illness. *American Journal on Addictions*, 20(3), 185-189. doi: 10.1111/j.1521-0391.2011.00126.x
- Petzel, R., Undersecretary for Veterans Health Administration, U.S. Department of Veterans Affairs. (2013). Assessing VA's capital investment options to provide veterans' care. *Committee on Veterans Affairs*.
- Phibbs, C. S., Cowgill, E. H., Fan, A. Y. (2013). Guide to the PSSG Enrollee File. Guidebook. Menlo Park, CA: VA Palo Alto, Health Economics Resource Center.
- Phillips, S. J. (2014). 26th Annual legislative update: Progress for APRN authority to practice. *Nurse Practitioner*, 39(1), 29-52.
- Phillips, S. J. (2015). 27th Annual APRN legislative update: Advancements continue for APRN practice. *Nurse Practitioner*, 40(1), 16-42.
- Pizer, S. D., & Prentice, J. C. (2011). What are the consequences of waiting for health care in the veteran population? Retrieved from <http://www.rwjf.org/en/library/research/2011/01/what-are-the-consequences-of-waiting-for-health-care-in-the-vete.html>

- Polsky, D., Lave, J., Klusaritz, H., Jha, A., Pauly, M. V., Cen, L., Xie, L., Stone, R., Chen, Z., & Volpp, K. (2007). Is lower 30-day mortality posthospital admission among blacks unique to the Veterans Affairs health care system? *Medical Care*, 45, 1083-1089. doi: 10.1097/MLR.0b013e3180ca960e
- Porter, S. (2013). Americans want physicians handling their health care. Retrieved May 31, 2015, from <http://www.aafp.org/news/practice-professional-issues/20131218ipsosurvey.html>
- Powell, A. A., Gravely, A. A., Ordin, D. L., Schlosser, J. E., & Partin, M. R. (2009). Timely follow-up of positive fecal occult blood tests strategies associated with improvement. *American Journal of Preventive Medicine*, 37(2), 87-93. doi: 10.1016/j.amepre.2009.05.013
- Prentice, J. C., Fincke, B. G., Miller, D. R., & Pizer, S. D. (2011). Outpatient wait time and diabetes care quality improvement. *American Journal of Managed Care*, 17(2), e43-54.
- Prentice, J. C., Fincke, B. G., Miller, D. R., & Pizer, S. D. (2012). Primary care and health outcomes among older patients with diabetes. *Health services research*, 47(1 Pt 1), 46-67.
- Pugh, J.A. (2001). Knowledge management and clinical practice guideline implementation.[Final Report]. *CPI* 99129, 1.
- Ranasinghe, I., Turnbull, F., Tonkin, A., Clark, R. A., Coffee, N., & Brieger, D. (2012). Comparative effectiveness of population interventions to improve access to reperfusion for ST-segment-elevation myocardial infarction in Australia. *Circulation. Cardiovascular Quality and Outcomes*, 5(4), 429-436. doi: 10.1161/CIRCOUTCOMES.112.965111
- RAND Corporation. (2005). Analyzing—and influencing—How the Department of Veterans Affairs allocates its health care dollars. Santa Monica, CA: RAND Corporation.
- Ravindranath, M. (2014, December 15). VA signs \$6 million contract for IBM Watson to advise PTSD treatment, *Washington Post*. Retrieved from [http://www.washingtonpost.com/business/on-it/va-signs-6-million-contract-for-ibm-watson-to-advise-ptsd-treatment/2014/12/15/0947a430-847f-11e4-a702-fa31ff4ae98e\\_story.html](http://www.washingtonpost.com/business/on-it/va-signs-6-million-contract-for-ibm-watson-to-advise-ptsd-treatment/2014/12/15/0947a430-847f-11e4-a702-fa31ff4ae98e_story.html)
- Rehman, S. U., Hutchison, F. N., Hendrix, K., Okonofua, E. C., & Egan, B. M. (2005). Ethnic differences in blood pressure control among men at Veterans Affairs clinics and other health care sites. *Archives of Internal Medicine*, 165, 1041-1047. doi: 10.1001/archinte.165.9.1041
- Render, M. L., Nowak, J., Hammond, E. K., & Roselle, G. (2003). Methods for estimating and comparing VA outpatient drug benefits with the private sector. *Medical Care*, 41, 1161-69. doi: 10.1097/01.MLR.0000068420.29471.F8
- Render, M. L., Roselle, G., Franchi, E., & Nugent, L. B. (2003). Methods for estimating private sector payments for VA acute inpatient stays. *Medical Care*, 41(6 Suppl), 1111-22. doi: 10.1097/01.MLR.0000068380.79495.77
- Render, M. L., Taylor, P., Plunkett, J., & Nugent, G. N. (2003). Methods to estimate and compare VA expenditures for assistive devices to Medicare payments. *Medical Care*, 41(6 Suppl), 1170-79. doi: 10.1097/01.MLR.0000068421.27117.6D
- Richards, H., King, G., Reid, M., Selvaraj, S., McNicol, I., Brebner, E., & Godden, D. (2005). Remote working: survey of attitudes to eHealth of doctors and nurses in rural general practices in the United Kingdom. *Family practice*, 22(1), 2-7.
- Richardson, K. K., Cram, P., Vaughan-Sarrazin, M., & Kaboli, P. J. (2013). Fee-based care is important for access to prompt treatment of hip fractures among veterans. *Clinical Orthopaedics and Related Research*, 471, 1047-1053. doi: 10.1007/s11999-013-2783-3

- Rivard, P. E., Elixhauser, A., Christiansen, C. L., Zhao, Shibe, & Rosen, A. K. (2009). Testing the association between patient safety indicators and hospital structural characteristics in VA and nonfederal hospitals. *Medical Care Research and Review*, 67, 321-341. doi: 10.1177/1077558709347378
- Robeznieks, A. (2015). VA clinicians say bureaucratic barriers hinder hiring spree. Retrieved May 31, 2015, 2015, from <http://www.modernhealthcare.com/article/20150518/NEWS/150519906>
- Robinson, C. (2014, June 11). National acquisition center updates. Hines, IL: VA National Acquisition Center.
- Robinson, K. R., & Petzel, R. (2010). Roles of nurse practitioners in the US Department of Veterans Affairs. *Nurse Practitioners: The evolution and future of advanced practice*, 284.
- Rodriguez, K. L., Burkitt, K. H., Bayliss, N. K., Skoko, J. E., Switzer, G. E., Zickmund, S. L., Fine, M. J., & Macpherson, D. S. (2015). Veteran, primary care provider, and specialist satisfaction with electronic consultation. *JMIR Medical Informatics*, 3(1), e5. doi: 10.2196/medinform.3725
- Rojas, S. V., & Gagnon, M. P. (2008). A systematic review of the key indicators for assessing telehomecare cost-effectiveness. *Telemedicine and e-Health*, 14(9), 896-904.
- Roselle, G., Render, M. L., Nugent, L. B., & Nugent, G. N. (2003). Estimating private sector professional fees for VA providers. *Medical Care*, 41(6 Suppl), I123-32. doi: 10.1097/01.MLR.0000068400.63862.1E
- Rosen, A. K., Loveland, S., & Anderson, J. J. (2003). Applying diagnostic cost groups to examine the disease burden of VA facilities: Comparing the six "Evaluating VA Costs" study sites with other VA sites and Medicare. *Medical Care*, 41, I191-102. doi: 10.1097/01.MLR.0000069623.15876.35
- Rosen, A. K., Rivard, P., Zhao, S., Loveland, S., Tsilimingras, D., Christiansen, C. L., Elixhauser, A., & Romano, P.S. (2005). Evaluating the patient safety indicators: How well do they perform on Veterans Health Administration data? *Medical Care*, 43, 873-884.
- Rosenberg, C. N., Peele, P., Keyser, D., McAnallen, S., & Holder, D. (2012). Results from a patient-centered medical home pilot at UPMC Health Plan hold lessons for broader adoption of the model. *Health Affairs*, 31(11), 2423-2431.
- Ross, J. S., Keyhani, S., Keenan, P. S., Bernheim, S. M., Penrod, J. D., Boockvar, K. S., Federman, A. D., Krumholz, H. M., & Siu, A. L. (2008). Use of recommended ambulatory care services: Is the Veterans Affairs quality gap narrowing? *Arch Intern Med*, 168, 950-958. doi: 10.1001/archinte.168.9.950
- Rossell, C.H. (1993). Using multiple criteria to evaluate public policies the case of school desegregation. *American Politics Research*, 21(2), 155-184.
- Rudin, R. S., Motala, A., Goldzweig, C. L., & Shekelle, P. G. (2014). Usage and effect of health information exchange: A systematic review. *Annals of Internal Medicine*, 161(11), 803-811.
- Salazar, M. K., Kemerer, S., Amann, M. C., & Fabrey, L. J. (2002). Defining the roles and functions of occupational and environmental health nurses. Results of a national job analysis. *AAOHN journal: official journal of the American Association of Occupational Health Nurses*, 50(1), 16-25.
- Salyers, M. P., Rollins, A. L., Kelly, Y. F., Lysaker, P. H., & Williams, J. R. (2013). Job satisfaction and burnout among VA and community mental health workers. *Administration and Policy in Mental Health*, 40(2), 69-75. doi: 10.1007/s10488-011-0375-7



- Schectman, G., Barnas, G., Laud, P., Cantwell, L., Horton, M., & Zarling, E. J. (2005). Prolonging the return visit interval in primary care. *American Journal of Medical*, 118(4), 393-399. doi: 10.1016/j.amjmed.2005.01.003
- Schooley, B. L., Horan, T. A., Lee, P. W., & West, P. A. (2010). Rural veteran access to healthcare services: Investigating the role of information and communication technologies in overcoming spatial barriers. *Perspectives in Health Information Management/AHIMA, American Health Information Management Association*, 7(Spring).
- Schrank, D., Eisele, B., & Lomax, T. (2012). TTI's 2012 urban mobility report powered by INRIX traffic data: Texas A&M Transportation Institute.
- Schwartz, L. M., Woloshin, S., Wasson, J. H., Renfrew, Roger A, & Welch, H Gilbert. (1999). Setting the revisit interval in primary care. *Journal of General Internal Medicine*, 14(4), 230-235.
- Scully, J. H., & Wilk, J. E. (2003). Selected characteristics and data of psychiatrists in the United States, 2001–2002. *Academic Psychiatry*, 27(4), 247-251. doi: 10.1176/appi.ap.27.4.247
- Seal, K. H., Bertenthal, D., Miner, C. R., Sen, S., & Marmar, C. (2007). Bringing the war back home: Mental health disorders among 103,788 us veterans returning from Iraq and Afghanistan seen at department of veterans affairs facilities. *Archives of Internal Medicine*, 167(5), 476-482. doi: 10.1001/archinte.167.5.476
- Selim, A. J., Berlowitz, D., Kazis, L. E., Rogers, W., Wright, S. M., Qian, S. X., Rothendler, J. A., Spiro III, A., Miller, D., Selim, B. J., & Fincke, B. G. (2010). Comparison of health outcomes for male seniors in the Veterans Health Administration and Medicare Advantage plans. *Health Services Research Journal*, 45, 376-396. doi: 10.1111/j.1475-6773.2009.01068.x
- Selim, A. J., Kazis, L. E., Qian, S., Rothendler, J. A., Spiro, A., Rogers, W., Haffer, S. C., Wright, S. M., Miller, D., Selim, B. J., & Fincke, B. G. (2009). Differences in risk-adjusted mortality between Medicaid-eligible patients enrolled in Medicare Advantage plans and those enrolled in the Veterans Health Administration. *Journal of Ambulatory Care Management*, 32, 232-240. doi: 10.1097/JAC.0b013e3181ac9d49
- Selim, A. J., Kazis, L. E., Rogers, W., Qian, S. X., Rothendler, J. A., Spiro III, A., Ren, X. S., Miller, D., Selim, B. J., & Fincke, B. G. (2007). Change in health status and mortality as indicators of outcomes: Comparison between the Medicare Advantage Program and the Veterans Health Administration. *Quality of Life Research*, 16, 1179-1191. doi: 10.1007/s11136-007-9216-2
- Selim, A.J., Kazis, L. E., Rogers, W., Qian, S., Rothendler, J.A., Lee, A., Ren, X. S., Haffer, S. C., Mardon, R., Miller, D., Spiro III, A., Selim, B. J., & Fincke, B.G. (2006). Risk-adjusted mortality as an indicator of outcomes: comparison of the Medicare Advantage Program with the Veterans' Health Administration. *Medical Care*, 44, 359-365. doi: 10.1097/01.mlr.0000204119.27597.f1
- Senate Appropriations Committee (2014, May 22). *Final Senate Appropriations Committee Holds Markup on Three Items—Draft Fiscal 2015 Agriculture Appropriations Bill, Draft Fiscal 2015 Military Construction-Veterans Affairs Appropriations Measure and the 302 (b) Subcommittee Spending Allocations*.
- Senate Appropriations Subcommittee on Military Construction, Veterans Affairs and Related Agencies Holds Hearing on President Obama's Fiscal 2016 and 2017 Budget Request for Veterans Health Administration, Senate (2015).

- Senate Appropriations Subcommittee on Military Construction, Veterans Affairs and Related Agencies Holds Hearing on President Obama's Proposed Fiscal 2015 Budget Request for the Veterans Affairs Department, Senate (2014).
- Servies, T., Hu, Z., Eick-Cost, A., & Otto, J. L. (2012). Substance use disorders in the U.S. Armed Forces, 2000-2011. *Medical Surveillance Monthly Report*, 19(11), 11-16.
- Shen, Y., Hendricks, A., Li, D., Gardner, J., & Kazis, L. (2005). VA-Medicare dual beneficiaries' enrollment in Medicare HMOs: Access to VA, availability of HMOs, and favorable selection. *Medical care research and review*, 62(4), 479-495.
- Shen, Y., Hendricks, A., Zhang, S., & Kazis, L. E. (2003). VHA enrollees' health care coverage and use of care. *Medical Care Research and Review: MCRR*, 60, 253-267.
- Shimada, S. L., Brandt, C. A., Feng, H., McInnes, D. K., Rao, S. R., Rothendler, J. A., Haggstrom, D. A., Abel, E. A., Cioffari, L. S., & Houston, T. K. (2014). Personal health record reach in the Veterans Health Administration: A cross-sectional analysis. *Journal of Medical Internet Research*, 16(12), e272. doi: 10.2196/jmir.3751
- Shimada, S. L., Hogan, T. P., Rao, S. R., Allison, J. J., Quill, A. L., Feng, H., Phillips, B. D., Nazi, K. M., Haidary, S. T., & Houston, T. K. (2013). Patient-provider secure messaging in VA: Variations in adoption and association with urgent care utilization. *Medical Care*, 51(3 Suppl 1), S21-28. doi: 10.1097/MLR.0b013e3182780917
- Skolarus, T. A., Chan, S., Shelton, J. B., Antonio, A. L., Sales, A. E., Malin, J. L., & Saigal, C. S. (2013). Quality of prostate cancer care among rural men in the Veterans Health Administration. *Cancer*, 119(20), 3629-3635.
- Smith, M. W., & Chow, A. (2013). *Non-VA Medical Care (fee basis) data: A guide for researchers*. Menlo Park, CA. Retrieved from [http://www.herc.research.va.gov/files/BOOK\\_761.pdf](http://www.herc.research.va.gov/files/BOOK_761.pdf)
- Smith, S. G., O'Connor, R., Aitken, W., Curtis, L. M., Wolf, M. S., & Goel, M. S. (2015). Disparities in registration and use of an online patient portal among older adults: Findings from the litcog cohort. *Journal of the American Medical Informatics Association*, ocv025.
- Smith, T. C., Wingard, D. L., Ryan, M. A., Kritz-Silverstein, D., Slymen, D. J., Sallis, J. F., & Millennium Cohort Study, T. (2008). Prior assault and posttraumatic stress disorder after combat deployment. *Epidemiology*, 19(3), 505-512. doi: 10.1097/EDE.0b013e31816a9dff
- SocioCultural Research Consultants, LLC. (2014). Dedoose Version 5.0.11 (Version 5.0.11). Retrieved from [www.dedoose.com](http://www.dedoose.com)
- Soh, K. B. K. (1998). Job analysis, appraisal and performance assessment of a surgeon: A multifaceted approach. *Singapore Medical Journal*, 39, 180-185.
- Sorbero, M. E., Mannle, T. E., Smith, B., Watkins, K. E., Woodroffe, A., Paddock, S. M., Shugarman, L. R., Cruz, E. D., Solomon, J., Burkhart, Q., Mattox, T., & Pincus, H. A. (2010). Program evaluation of VHA mental health services: Administrative data report. (Contract No. GS 10 F-0261K). Alexandria, VA: Altarum Institute and RAND-University of Pittsburgh Health Institute.
- Southern Surgeons Club, Moore, M.J., & Bennett, C.L. (1995). The learning curve for laparoscopic cholecystectomy. *American Journal of Surgery*, 170(1), 55-59.
- Spetz, J., Parente, S. T., Town, R. J., & Bazarko, D. (2013). Scope-of-practice laws for nurse practitioners limit cost savings that can be achieved in retail clinics. *Health Affairs*, 32(11), 1977-1984.

- Stange, K. (2014). How does provider supply and regulation influence health care markets? Evidence from nurse practitioners and physician assistants. *Journal of Health Economics*, 33, 1-27.
- Stefos, T., & Burgess, J. (2014). Establishing Vouchers For Veteran Health Care. *Health Affairs Blog*. Retrieved from <http://healthaffairs.org/blog/2014/10/02/establishing-vouchers-for-veteran-health-care/>
- Stefos, T., Burgess Jr., J. F., Cohen, J. P., Lehner, L., & Moran, E. (2012). Dynamics of the mental health workforce: Investigating the composition of physicians and other health providers. *Health Care Management Science*, 15(4), 373-384.
- Sternberg, S. (2015, May 19). Hospitals move to limit low-volume surgeries. *U.S. News & World Report*. retrieved from <http://www.usnews.com/news/articles/2015/05/19/hospitals-move-to-limit-low-volume-surgeries>
- Sternberg, S., & Dougherty, G. (2015, May 18). Risks are high at low-volume hospitals. *U.S. News & World Report*. Retrieved from <http://www.usnews.com/news/articles/2015/05/18/risks-are-high-at-low-volume-hospitals>
- Stern, M. F., Fitzgerald, J. F., Dittus, R. S., Tierney, W. M., & Overhage, J. M. (1991). *Office visits and outcomes of care-does frequency matter*. *Clinical Research*, 39(2).
- Substance Abuse and Mental Health Services Administration. (2002). *Results from the 2001 National Household Survey on Drug Abuse: Volume II. Technical appendices and selected data tables*. Rockville, MD.
- Swindle, R., Lukas, C. V., Meyer, D.A., Barnett, P. G., & Hendricks, A. M. (1999). Cost analysis in the Department of Veterans Affairs: Consensus and future directions. *Medical Care*, 37, AS3-8.
- Tanielian, T. L., & Jaycox, L. (2008). *Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery*. Santa Monica, CA: RAND Corporation.
- Tarlov, E., Lee, T. A., Weichle, T. W., Durazo-Arvizu, R., Zhang, Q., Perrin, R., Bentrem, D., & Hynes, D.M. (2012). Reduced overall and event-free survival among colon cancer patients using dual system care. *Cancer Epidemiological Biomarkers & Prevention*, 21, 2231-2241. doi: 10.1158/1055-9965.epi-12-0548
- Teclaw, R., & Osatuke, K. (2014). Nurse perceptions of workplace environment: Differences across shifts. *Journal of Nursing Management*. doi: 10.1111/jonm.12270
- Thomas, L. H., Cullum, N. A., McColl, E., Rousseau, N., Soutter, J., & Steen, N. (1999). Guidelines in professions allied to medicine. *The Cochrane Library*.
- Tobacman, J. K., Zeitler, R. R., Cilursu, A. M., & Mori, M. (1992). Variation in physician opinion about scheduling of return visits for common ambulatory care conditions. *Journal of General Internal Medicine*, 7(3), 312-316.
- Traczynski, J., & Udalova, V. (2013). *Nurse practitioner independence, health care utilization, and health outcomes*. Paper presented at the Fourth Annual Midwest Health Economics Conference.
- Trivedi, A. N., & Grebla, R. C. (2011). Quality and equity of care in the veterans affairs health-care system and in Medicare advantage health plans. *Medical Care*, 49, 560-568. doi: 10.1097/MLR.0b013e31820fb0f6

- Trivedi, A. N., Grebla, R. C., Jiang, L., Yoon, J., Mor, V., & Kizer, K. W. (2012). Duplicate federal payments for dual enrollees in Medicare Advantage plans and the Veterans Affairs health care system. *Journal of the American Medical Association*, 308, 67-72. doi: 10.1001/Journal of American Medical Association.2012.7115
- Trivedi, A. N., Matula, S., Miake-Lye, I., Glassman, P. A., Shekelle, P., & Asch, S. (2011). Systematic review: Comparison of the quality of medical care in Veterans Affairs and non-Veterans Affairs settings. *Medical Care*, 49, 76-88. doi: 10.1097/MLR.0b013e3181f53575
- Turrentine, F. E., Henderson, W. G., Khuri, S. F., Schiffner, T. L., Inabnet, W. B., El-Tamer, M., Northup, C. J., Simpson, V. B., Neumayer, L., & Hanks, J. B. (2007). Adrenalectomy in Veterans Affairs and selected university medical centers: Results of the patient safety in surgery study. *Journal of the American College of Surgeons*, 204, 1273-1283. doi: 10.1016/j.jamcollsurg.2007.03.014
- U.S. Department of Defense & Department of Veterans Affairs. (2014). DoD and VA take new steps to support the mental health needs of service members and veterans. *Joint Fact Sheet*.
- U.S. Department of Defense, Department of Veterans Affairs, & Department of Health and Human Services. (2013). Interagency task force on military and veterans mental health 2013 annual report.
- U.S. Department of Veterans Affairs, Management of Post-Traumatic Stress Working Group. (2010). *VA/DoD clinical practice guideline for management of post-traumatic stress*.
- U.S. Department of Veterans Affairs, Management of Substance Use Disorders Working Group. (2009). *VA/DoD clinical practice guideline for management of substance use disorders (SUD)*.
- U.S. Department of Veterans Affairs, Office of Budget. (2015). Fiscal Year 2016 Budget Submission *President's Budget Request: Department of Veterans' Affairs*.
- U.S. Department of Veterans Affairs, Office of Information and Technology. (2014). *FY 2013–2015 information resources management strategic plan*.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2008). *Audit of Veterans Health Administration noncompetitive clinical sharing agreements*. (08-00477-211).
- U.S. Department of Veterans Affairs, Office of Inspector General. (2009). *Audit of Veterans Health Administration's non-VA outpatient fee care program*. Washington, DC.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2010). *Audit of non-VA inpatient fee care program*. Washington, DC.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2012a). *Audit of physician staffing levels for specialty care services*. Washington, DC.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2012b). *Review of veterans' access to mental health care*. Washington, DC.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2013, September 6). *Healthcare inspection gastroenterology consult delays William Jennings Bryan Dorn VA Medical Center Columbia, South Carolina*. (Report No. 12-04631-313). Washington, DC.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2014a). *Audit of the non-recurring maintenance program (13-00589-137)*. Washington, DC.

## Assessment B (Health Care Capabilities)

---

- U.S. Department of Veterans Affairs, Office of Inspector General. (2014b). *Review of alleged patient deaths, patient wait times, and scheduling practices at the phoenix VA health care system*. (14-02603-267). Washington, DC.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2014c). *Veterans Health Administration audit of mobile medical units* (13-03213-152).
- U.S. Department of Veterans Affairs, Office of Inspector General. (2015a, January 30). *OIG determination of Veterans Health Administration's occupational staffing shortages*. Washington, DC.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2015b). *Review of alleged misuse of VA funds to develop the health care claims processing system*. Washington, DC.
- U.S. Department of Veterans Affairs, Office of Inspector General. (2015c). *Review of VA's patient-centered community care (PC3) contracts' estimated cost savings*.
- U.S. Department of Veterans Affairs, Office of Inspector General (2015d). *Audit of the Home Telehealth Program*. Washington, DC.
- U.S. Department of Veterans Affairs, Office of Patient Care Services (2012). *Strategic plan for national telehealth services within the Department of Veterans Affairs FY 13-15*. Washington DC.
- U.S. Department of Veterans Affairs. (undated). *2012 Hospital Quality Report Card*. Retrieved from <http://www.va.gov/health/HospitalReportCard.asp>.
- U.S. Department of Veterans Affairs. (2010a). VA Career Resources. Retrieved May 31, 2015, from [http://www.vacareers.va.gov/resources/downloads/APN\\_Brochure\\_021210.txt](http://www.vacareers.va.gov/resources/downloads/APN_Brochure_021210.txt)
- U.S. Department of Veterans Affairs. (2010b). *VHA Handbook 1162.02: Mental Health residential rehabilitation treatment program (MH RRTP)*. Washington, DC.
- U.S. Department of Veterans Affairs. (2011a, January 6). VA Mobile Health. Retrieved April 28, 2015, from <https://mobile.va.gov/about>
- U.S. Department of Veterans Affairs. (2011b) *Office of Nursing Services 2011 annual report*.
- U.S. Department of Veterans Affairs. (2011c). FY11 EDM Complexity model.
- U.S. Department of Veterans Affairs. (2013a, January 29). VA introduces new and enhanced features for VA Blue Button. Retrieved May 12, 2015, from <http://www.va.gov/opa/pressrel/pressrelease.cfm?id=2422>
- U.S. Department of Veterans Affairs. (2013b). Report of the 2013 survey of veteran enrollees' health and reliance upon VA.
- U.S. Department of Veterans Affairs. (2013c). VERA 2013: Patient Classification Handbook. Washington, DC: Veterans Affairs, Veterans Health Administration.
- U.S. Department of Veterans Affairs. (2013d). VHA facility quality and safety report. Retrieved from <http://www.va.gov/HEALTH/docs/2013QSExecutiveSummary.pdf>
- U.S. Department of Veterans Affairs. (2013f). *VHA Handbook 1006.02*. Washington, DC.
- U.S. Department of Veterans Affairs. (2013g). *VHA Handbook 1172.01: Polytrauma System of Care*. Washington, DC.
- U.S. Department of Veterans Affairs. (2013h). VistA Monograph.

## Assessment B (Health Care Capabilities)

---

- U.S. Department of Veterans Affairs. (2014a). *2013 survey of VHA surgery services*. Washington, DC: Healthcare Analysis & Information Group (HAIG).
- U.S. Department of Veterans Affairs. (2014b). Fact Sheet: Supportive services for veteran families (SSVF) Program. Retrieved from [http://www.va.gov/HOMELESS/ssvf/docs/SSVF\\_Fact\\_Sheet\\_April2014.pdf](http://www.va.gov/HOMELESS/ssvf/docs/SSVF_Fact_Sheet_April2014.pdf)
- U.S. Department of Veterans Affairs. (2014c). Linking knowledge & systems (LinkS). Retrieved from <http://www.hospitalcompare.va.gov/aspire/index.asp>
- U.S. Department of Veterans Affairs. (2014d). VA transparency program—ASPIRE. Retrieved from <http://www.hospitalcompare.va.gov/aspire/index.asp>
- U.S. Department of Veterans Affairs. (2014e). Veterans health benefits handbook.
- U.S. Department of Veterans Affairs. (2014f). *VA telehealth services served over 690,000 veterans in fiscal year 2014*. Washington, DC. Retrieved from <http://www.va.gov/opa/pressrel/pressrelease.cfm?id=2646>
- U.S. Department of Veterans Affairs. (2014g, March 24). VistA evolution program plan. Retrieved May 26, 2015, from [http://www.osehra.org/sites/default/files/vista\\_evolution\\_program\\_plan\\_3-24-14.pdf](http://www.osehra.org/sites/default/files/vista_evolution_program_plan_3-24-14.pdf)
- U.S. Department of Veterans Affairs. (2014h). Strategic Analytics for Improvement and Learning (SAIL). Retrieved May 17, 2015, from <http://www.hospitalcompare.va.gov/aspire/index.asp>
- U.S. Department of Veterans Affairs. (2014i). Fact sheet: VA programs for homeless veterans. Retrieved from <https://www.211la.org/wp-content/uploads/2014/06/Homeless-Programs-General-Fact-Sheet-Update-December-2014-FINAL.pdf>
- U.S. Department of Veterans Affairs. (2014j, May). *VERA Veterans Equitable Resource Allocation*. (VERA Book). Washington, DC.
- U.S. Department of Veterans Affairs. (2015a). *Volume II: Medical Programs and Information Technology Programs—Congressional Submission FY 2016 Funding and FY 2017 Advance Appropriations*. Retrieved from <http://www.va.gov/budget/docs/summary/Fy2016-Volumell-MedicalProgramsAndInformationTechnology.pdf>
- U.S. Department of Veterans Affairs. (2015b). Cooperative Clinical Trial Award (CCTA) Program.
- U.S. Department of Veterans Affairs. (2015c). Health benefits—health care insurance. Retrieved from <http://www.va.gov/healthbenefits/cost/insurance.asp>
- U.S. Department of Veterans Affairs. (2015d). Telehealth cube, VSSC.
- U.S. Department of Veterans Affairs. (2015e). VISN by VISN telehealth workload: Raw data provided to RAND.
- U.S. Department of Veterans Affairs. (2015f). Military sexual trauma. Retrieved April 30, 2015, from <http://www.mentalhealth.va.gov/msthome.asp>
- U.S. Department of Veterans Affairs. (2015g). VA mobile apps for mental health.
- U.S. Department of Veterans Affairs. (2015h). *2015 copayment rates*.
- U.S. Department of Veterans Affairs. (2015i). *2015 copayment requirements at a glance*.
- U.S. Department of Veterans Affairs. HERC—Data— Managerial Cost Accounting (MCA).

## Assessment B (Health Care Capabilities)

---

- U.S. Department of Veterans Affairs. HERC—Data—HERC Average Cost Data.
- U.S. Department of Veterans Affairs. HERC—Methods—Average Cost Method. Retrieved from <http://www.herc.research.va.gov/include/page.asp?ID=home>
- U.S. Government Accountability Office. (1997a). *Resource allocation has improved, but better oversight is needed*. Washington, DC.
- U.S. Government Accountability Office. (1997b). *VA is adopting managed care practices to better manage physician resources*. Washington, DC.
- U.S. Government Accountability Office. (2002a). *Allocation changes would better align resources with workload*. Washington, DC.
- U.S. Government Accountability Office. (2002b). *Efforts to strengthen the link between resources and results at the Veterans Health Administration*. Washington, DC.
- U.S. Government Accountability Office. (2004a). *Guidance needed for determining the cost to collect from veterans and private health insurers*. Washington, DC.
- U.S. Government Accountability Office. (2004b). *Resource allocations to medical centers in the Mid South Healthcare Network*. Washington, DC.
- U.S. Government Accountability Office. (2005). *Key challenges to aligning capital assets and enhancing veterans' care*. Washington, DC.
- U.S. Government Accountability Office. (2006). *Preliminary Information on resources allocated for Mental Health Strategic Plan initiatives*. Washington, DC.
- U.S. Government Accountability Office. (2011a). *Need for more transparency in new resource allocation process and for written policies on monitoring resources*. Washington, DC.
- U.S. Government Accountability Office. (2011b). *VA uses a projection model to develop most of its health care budget estimate and to inform the president's budget request*. (GAO-11-205). Washington, DC.
- U.S. Government Accountability Office. (2012a). *VA and DoD health care: Department-level actions needed to assess collaboration performance, address barriers, and identify opportunities*. Washington, DC.
- U.S. Government Accountability Office. (2012b). *VA health care: Estimates of available budget resources compared with actual amounts*. Washington, DC.
- U.S. Government Accountability Office. (2012c). *Reliability of reported outpatient medical appointment wait times and scheduling oversight need improvement*. GAO-13-130). Washington, DC.
- U.S. Government Accountability Office. (2013a). *Actions needed to improve administration of the Provider Performance Pay and Award Systems*. Washington, DC.
- U.S. Government Accountability Office. (2013b). *Improvements needed to ensure that budget estimates are reliable and that spending for facility maintenance is consistent with priorities*. Washington, DC.
- U.S. Government Accountability Office. (2013c). *Management and oversight of fee basis care need improvement*. Washington, DC.
- U.S. Government Accountability Office. (2015). *Managing risks and improving VA health care*. Washington, DC.

---

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

- U.S. House of Representatives (2013). *Assessing VA's capital investment options to provide veterans' care*. Washington, DC.
- Unterman, S., Kessler, C., & Pitzele, H. Z. (2010). Staffing of the ED by non-emergency medicine-trained personnel: The VA experience. *American Journal of Emergency Medicine*, 28(5), 622-625.
- VA—See U.S. Department of Veterans Affairs.
- VA/DoD Health Executive Council. (2003). Memorandum of agreement, health care resource sharing reimbursement methodology.
- VA/DoD Medical Sharing Office (2015, March 11). [Email correspondence with VA Official].
- Vasterling, J. J., Proctor, S. P., Friedman, M. J., Hoge, C. W., Heeren, T., King, L. A., & King, D. W. (2010). PTSD symptom increases in Iraq-deployed soldiers: Comparison with nondeployed soldiers and associations with baseline symptoms, deployment experiences, and postdeployment stress. *Journal of Traumatic Stress*, 23(1), 41-51. doi: 10.1002/jts.20487
- Vaughan-Sarrazin, M. S., Wakefield, B., & Rosenthal, G. E. (2007a). Mortality of Department of Veterans Affairs patients admitted to private sector hospitals for 5 common medical conditions. *American Journal of Medical Quality*, 22, 186-197. doi: 10.1177/1062860607300656
- Vaughan-Sarrazin, M. S., Wakefield, B., & Rosenthal, G. E. (2007b). Mortality of Department of Veterans Affairs patients undergoing coronary revascularization in private sector hospitals. *Health Services Research*, 42, 1802-1821. doi: 10.1111/j.1475-6773.2007.00720.x
- Veterans Affairs Site Tracking (VAST) Dataset. (2015).
- Veterans Health Administration. (2014). Blueprint for excellence.
- Veterans Health Administration, Office of Health Information Product Effectiveness. (2010). VistA clinical application usage data call report of findings.
- Veterans Health Administration, Office of Health Information Product Effectiveness. (2012). VistA Applications Focus Groups Summary Report. Version 4.0.
- Veterans Health Administration, Office of Productivity, Efficiency, and Staffing. (2014a). Frequently asked questions—Specialty physician productivity standards and business guidelines (Internal Documentation). Washington, DC.
- Veterans Health Administration, Office of Productivity, Efficiency, and Staffing (2014b). Specialty productivity access and quadrant tool (SPARQ) definitions (Internal Documentation). Washington, DC.
- Veterans Health Administration, Office of Productivity, Efficiency, and Staffing. (2015, March 31). *Data definitions, VHA Facility Complexity Model*.
- Veterans Health Administration, Office of the Assistant Deputy Under Secretary for Health for Policy and Planning. (2015, March 31). VHA sites of care classification. (Briefing slides).
- Veterans Health Administration, Procurement and Logistics Office. (2014). *The academic affiliate guide to health care resources contracting with the Department of Veterans Affairs*. Retrieved from <http://www.va.gov/oaa/solesource/>
- Veterans Health Administration, Support Service Center Capital Assets (VSSC). (2014). Virtual care modality, FY 2014: Raw data provided to RAND.



- Veterans Health Administration, Telehealth Services. (2014). *Barriers impacting sustainment and expansion of VA's national telehealth programs*. Document provided to RAND.
- Veterans Health Administration. (1997). *Under Secretary for Health's Information Letter 10-97-024: Utilization of Nurse Practitioners and Clinical Nurse Specialists*. Washington, DC.
- Veterans Health Administration. (2014). *History of physician productivity in the VHA*. (Internal document). Washington, DC.
- Veterans Health Administration. (2015). 300 Vet centers here for vets who served in combat zones. Retrieved from <http://www.va.gov/health/NewsFeatures/20120227a.asp>
- Veterans of Foreign Wars of the US. (2015, March 2). *Veterans choice program initial report*.
- Veterans Service Organizations. (2015). The Independent Budget - Medical Services.
- Veterans' Health Care Eligibility Reform Act of 1996, H.R. 3118 § 38 U.S.C. 1117, 1710, 1712, 1729, 545, 7319, 7320 and 8111
- VHA—See Veterans Health Administration.
- Villa, V. M., Harada, N. D., & Huynh-Hohnbaum, A. L. (2010). Health and ambulatory care use among Native American veterans. *Home Health Care Services quarterly*, 29(4), 195-215.
- Vincent, A. G., Byrne, C. M., Mitchell, S. R., Blumenfeld, B., & Mon, D.T. (2015). Return on Investment In Health Information Technology: Synopsis Paper.
- VHA Support Service Center. (2011, June 7). Bed cube (fact sheet).
- VHA Support Service Center. (2014). Virtual Care Modality, FY 2014: Raw data provided to RAND Corporation.
- VSSC—See VHA Support Service Center.
- Wagner, D. (2015, June 19). VA to outsource care for 180,000 vets with hepatitis C. *Arizona Republic*. Retrieved from <http://www.azcentral.com/story/news/arizona/investigations/2015/06/19/va-outsource-care-vets-hepatitis/28969411/>
- Wakefield, B. J., Buresh, K. A., Flanagan, J. R., & Kienzle, M. G. (2004). Interactive video specialty consultations in long-term care. *Journal of the American Geriatrics Society*, 52(5), 789-793.
- Wakefield, B. J., Tripp-Reimer, T., Rosenbaum, M. E., & Rosenthal, G. E. (2007). Veterans' use of Department of Veterans Affairs care and perceptions of outsourcing inpatient care. *Military Medicine*, 172(6), 565-571.
- Walker, J., Darer, J. D., Elmore, J. G., & Delbanco, T. (2014). The road toward fully transparent medical records. *New England Journal of Medicine*, 370(1), 6-8.
- Wallace, A. E, MacKenzie, T. A., Wright, S. M., & Weeks, W. B. (2010). A cross-sectional, multi-year examination of rural and urban Veterans Administration users: 2002-2006. *Military Medicine*, 175(4), 252-258.
- Wang, A., Kinsinger, L. S., Kahwati, L. C., Das, S. R., Gizlice, Z., Harvey, R. T., Burdick, M. B., & Yevich, S. J. (2005). Obesity and weight control practices in 2000 among veterans using VA facilities. *Obesity Research*, 13, 1405-1411. doi: 10.1038/oby.2005.170

- Wang, L., Porter, B., Maynard, C., Evans, G., Bryson, C., Sun, H., Gupta, I., Lowy, E., McDonnell, M., Frisbee, K., Neilson, C., Kirkland, F., & Fihn, S., (2013a). Predicting risk of hospitalization or death among patients receiving primary care in the Veterans Health Administration. *Medical Care*, 51(4), 368-373.
- Wang, V., Maciejewski, M. L., Patel, U. D., Stechuchak, K. M., Hynes, D. M., & Weinberger, M. (2013b). Comparison of outcomes for veterans receiving dialysis care from VA and non-VA providers. *BMC Health Services Research*, 13, 26. doi: 10.1186/1472-6963-13-26
- Washington, D. L., Bean-Mayberry, B., Riopelle, D., & Yano, E. M. (2011). Access to care for women veterans: Delayed healthcare and unmet need. *Journal of General Internal Medicine*, 26 Suppl 2, 655-661. doi: 10.1007/s11606-011-1772-z
- Washington, D. L., Yano, E. M., Simon, B., & Sun, S. (2006). To use or not to use. What influences why women veterans choose VA health care. [Research Support, U.S. Gov't, Non-P.H.S.]. *Journal of General Internal Medicine*, 21 Suppl 3, S11-18.
- Wasserman, J., Ringel, J. S., Ricci, K. A., Malkin, J., Schoenbaum, M., Wynn, B. O., Rastegar, A. (2003). *An analysis of potential adjustments to the Veterans Equitable Resource Allocation (VERA) system*. Santa Monica, CA: RAND Corporation.
- Wasserman, J., Ringel, J. S., Ricci, K. A., Malkin, J., Wynn, B. O., Zwanziger, J., Newberry, S. J., Suttrop, M., & Rastegar, A. (2004). *Understanding potential changes to the Veterans Equitable Resource Allocation system (VERA): A regression-based approach*. Santa Monica, CA: RAND.
- Wasserman, J., Ringel, J.S., Wynn, B.O., Zwanziger, J., Ricci, K.A., Newberry, S. J., Genovese, B., & Schoenbaum, M. (2001). *An analysis of the Veterans Equitable Resource Allocation (VERA) system*. Santa Monica, CA: RAND Corporation.
- Watkins, K. E., Smith, B., Paddock, S. M., Mannle, Jr., T. E., Woodroffe, A., Solomon, J., Sorbero, M., Farmer, C., Hepner, K., Adamson, D. M., Forrest, L., Call, C., & Pincus, H. A. (2011). *Veterans Health Administration mental health program evaluation: Capstone report*. Santa Monica, CA: RAND Corporation.
- Weeks, W. B. (2014). Physician pay and student debt. *Healthcare Financial Management*, 68(3), 128-129.
- Weeks, W. B., & Auerbach, D. (2014). A VA exit strategy. *New England Journal of Medicine*, 371(9), 789-791. doi: 10.1056/NEJMp1407535
- Weeks, W. B., Bazos, D. A., Bott, D. M., Lombardo, R., Racz, M. J., Hannan, E. L., & Fisher, E. S. (2005a). New York's statistical model accurately predicts mortality risk for veterans who obtain private sector CABG. *Health Services Research*, 40, 1186-1196. doi: 10.1111/j.1475-6773.2005.00402.x
- Weeks, W. B., Bott, D. M., Lamkin, R. P., & Wright, S. M. (2005b). Veterans Health Administration and Medicare outpatient health care utilization by older rural and urban New England veterans. *J Rural Health*, 21(2), 167-171.
- Weeks, W. B., Lee, R. E., Wallace, A. E., West, A. N., & Bagian, J.P. (2009a). Do older rural and urban veterans experience different rates of unplanned readmission to VA and non-VA hospitals? *Journal of Rural Health*, 25(1), 62-69. doi: 10.1111/j.1748-0361.2009.00200.x
- Weeks, W. B., Wallace, A. E., Wallace, T. A., & Gottlieb, D. J. (2009b). Does the VA offer good health care value? *Journal of Health Care Finance*, 35, 1-12.

- Weeks, W. B., Wallace, A. E., West, A. N., Heady, H. R., & Hawthorne, K. (2008a). Research on rural veterans: An analysis of the literature. *Journal of Rural Health, 24*(4), 337-344.
- Weeks, W. B., Wallace, T. A., & Wallace, A. E. (2009d). The impact of the Department of Veterans Affairs Health Care Personnel Enhancement Act of 2004 on VA physicians' salaries and retention. *Journal of Health Care Finance, 35*(4), 13.
- Weeks, W. B. & West, A. N. (2007). Where do Veterans Health Administration patients obtain heart, liver, and kidney transplants? *Military Medicine, 172*(11), 1154.
- Weeks, W. B., West, A. N., Rosen, A.K., & Bagian, J. P. (2008b). Comparing measures of patient safety for inpatient care provided to veterans within and outside the VA system in New York. *Quality & Safety in Health Care, 17*, 58-64. doi: 10.1136/qshc.2006.020735
- Weeks, W. B., West, A. N., Wallace, A. E., & Fisher, E. S. (2008c). Comparing the characteristics, utilization, efficiency, and outcomes of VA and non-VA inpatient care provided to VA enrollees: A case study in New York. *Medical Care, 46*, 863-871. doi: 10.1097/MLR.0b013e31817d92e1
- Weeks, W. B., West, A. N., Wallace, A. E., Lee, R. E., Goodman, D. C., Dimick, J.B., & Bagian, J.P. (2007). Reducing avoidable deaths among veterans: Directing private-sector surgical care to high-performance hospitals. *American Journal of Public Health, 97*(12), 2186-2192. doi: 10.2105/ajph.2007.115337
- Weinberger, M., Oddone, E. Z., & Henderson, W. G. (1996). Does increased access to primary care reduce hospital readmissions? *New England Journal of Medicine, 334*(22), 1441-1447.
- Weinstock, M. A., Nguyen, F. Q., & Risica, P. M. (2002). Patient and referring provider satisfaction with tele dermatology. *Journal of the American Academy of Dermatology, 47*(1), 68-72.
- Weiss, J. S., Dumas, P., Cha, C., Gusberg, R. J., & Dardik, A. (2006). Safety of carotid endarterectomy in a high-risk population: Lessons from the VA and Connecticut. *Journal of the American College of Surgeons, 203*, 277-282. doi: 10.1016/j.jamcollsurg.2006.05.015
- Welch, H. G., Chapko, M. K., James, K. E., Schwartz, L. M., & Woloshin, S. (1999). The role of patients and providers in the timing of follow-up visits. *Journal of General Internal Medicine, 14*(4), 223-229.
- Wen, H. C., Tang, C. H., Lin, H. C., Tsai, C. S., Chen, C. S., & Li, C. Y. (2006). Association between surgeon and hospital volume in coronary artery bypass graft surgery outcomes: A population-based study. *Annals of Thoracic Surgery, 81*(3), 835-842.
- Werner, R. M., Canamucio, A., Shea, J. A., & True, G. (2014). The medical home transformation in the Veterans Health Administration: An evaluation of early changes in primary care delivery. *Health Services Research*.
- West, A. N., & Weeks, W. B. (2007). Who pays when VA users are hospitalized in the private sector? Evidence from three data sources. *Medical Care, 45*(10), 1003-1007.
- West, A. N., & Weeks, W. B. (2009). Health care expenditures for urban and rural veterans in Veterans Health Administration care. *Health Services Research, 44*(5 Pt 1), 1718-1734. doi: 10.1111/j.1475-6773.2009.00988.x
- West, A., & Weeks, W. B. (2006). Physical and mental health and access to care among nonmetropolitan Veterans Health Administration patients younger than 65 years. *Journal of Rural Health, 22*, 9-16. doi: 10.1111/j.1748-0361.2006.00014.x

- Westat. (2010). *National survey of veterans, active duty service members, demobilized national guard and reserve members, family members, and surviving spouses*. Washington, DC: U.S. Department of Veterans Affairs.
- Whited, J. D., Hall, R. P., Foy, M. E., Marbrey, L. E., Grambow, S. C., Dudley, T. K., Datta, S., Simel, D. L., & Oddone, E. Z. (2002). Teledermatology's impact on time to intervention among referrals to a dermatology consult service. *Telemedicine Journal and E-Health*, 8(3), 313-321.
- Whited, J. D., Hall, R. P., Foy, M. E., Marbrey, L. E., Grambow, S. C., Dudley, T. K., Datta, S. K., Simel, D. L., & Oddone, E. Z. (2004). Patient and clinician satisfaction with a store-and-forward teledermatology consult system. *Telemedicine Journal & E-Health*, 10(4), 422-431.
- Whited, J. D., Hall, R. P., Foy, M. E., Marbrey, L. E., Grambow, S. C., Dudley, T. K., Datta, S., Simel, D. L., & Oddone, E. Z. (2002). Teledermatology's impact on time to intervention among referrals to a dermatology consult service. *Telemedicine Journal and E-Health*, 8(3), 313-321.
- Wilkins, E. G., Lowery, J. C., & Goldfarb, S. (2007). Feasibility of virtual wound care: A pilot study. *Advances in Skin & Wound Care*, 20(5), 275-278.
- Williamson, R. B. (2014). *VA health care: Further action needed to address weaknesses in management and oversight of Non-VA medical care*. Retrieved from <http://gao.gov/assets/670/664171.pdf>
- Wilson, I. B., Landon, B. E., Hirschhorn, L. R., McInnes, K., Ding, L., Marsden, P. V., & Cleary, P. D. (2005). Quality of HIV care provided by nurse practitioners, physician assistants, and physicians. *Annals of Internal Medicine*, 143(10), 729-736.
- Wilson, J. F. (2008). Primary care delivery changes as nonphysician clinicians gain independence. *Annals of Internal Medicine*, 149(8), 597-600.
- Winkler, S. L., Vogel, B., Hoenig, H., Ripley, D. C., Wu, S., Fitzgerald, S. G., Mann, W. C., & Reker, D. M. (2010). Cost, utilization, and policy of provision of assistive technology devices to veterans poststroke by Medicare and VA. *Medical Care*, 48, 558-562. doi: 10.1097/MLR.0b013e3181bd4a11
- Wise, P., Pettit, L., Hoffman, C., & Rasulnia, M. (2015). *Three perspectives of patient engagement: A national study*. Paper presented at the HIMSS15, Chicago, IL.
- Woods, S. S., Schwartz, E., Tuepker, A., Press, N. A., Nazi, K. M., Turvey, C. L., & Nichol, W. P. (2013). Patient experiences with full electronic access to health records and clinical notes through the My HealtheVet Personal Health Record Pilot: Qualitative study. *Journal of Medical Internet Research*, 15(3), e65. doi: 10.2196/jmir.2356
- Yaisawarng, S., & Burgess, J. F. (2006). Performance-based budgeting in the public sector: An illustration from the VA health care system. *Health Economics*, 15(3), 295-310. doi: 10.1002/hec.1060
- Zeber, J. E., Copeland, L. A., McCarthy, J. F., Bauer, M. S., & Kilbourne, A. M. (2009). Perceived access to general medical and psychiatric care among veterans with bipolar disorder. *American Journal of Public Health*, 99(4), 720.
- Zuchowski, J. L., Rose, D. E., Hamilton, A. B., Stockdale, S. E., Meredith, L. S., Yano, E. M., Rubenstein, L. V., & Cordasco, K. M. (2015). Challenges in referral communication between VHA primary care and specialty care. *Journal of General Internal Medicine*, 30(3), 305-312.

## Appendix D Acronyms

Acronym	Definition
<b>AHRQ</b>	Agency for Healthcare Research and Quality
<b>APN</b>	Advanced Practice Nurse
<b>ARCH</b>	Access Received Closer to Home
<b>CAHPS</b>	Consumer Assessment of Healthcare Providers and Systems
<b>CBOC</b>	Community-Based Outpatient Clinic
<b>CCU</b>	Critical Care Unit
<b>CMS</b>	Centers for Medicare & Medicaid Services
<b>CPRS</b>	Computerized Patient Record System
<b>CWT/TR</b>	Compensated Work Therapy/Transitional Residential
<b>DoD</b>	U.S. Department of Defense
<b>EHCPM</b>	Enrollee Health Care Projection Model
<b>EKG</b>	Electrocardiogram
<b>FQHC</b>	Federally Qualified Health Center
<b>FTE</b>	Full-Time Equivalent
<b>FY</b>	Fiscal Year
<b>GAO</b>	U.S. Government Accountability Office
<b>GIS</b>	Geographic Information System
<b>HEDIS</b>	Healthcare Effectiveness Data and Information Set
<b>HMO</b>	Health Maintenance Organization
<b>HUD</b>	U.S. Department of Housing and Urban Development
<b>HUD-VASH</b>	U.S. Department of Housing and Urban Development–Veterans Affairs Supportive Housing
<b>ICU</b>	Intensive Care Unit
<b>IT</b>	Information Technology
<b>LDL-C</b>	Low-Density Lipoprotein Cholesterol
<b>OMB</b>	Office of Management and Budget
<b>PC3</b>	Patient-Centered Community Care
<b>PCMH</b>	Patient-Centered Medical Home
<b>PPC</b>	Physician Productivity Cube

The views, opinions, and/or findings contained in this report are those of RAND Corporation and should not be construed as an official government position, policy, or decision.

## Assessment B (Health Care Capabilities)

---

Acronym	Definition
<b>PSI</b>	Patient Safety Indicator
<b>PTSD</b>	Post-Traumatic Stress Disorder
<b>RVU</b>	Relative Value Unit
<b>SHEP</b>	Survey of Healthcare Experience of Patients
<b>SHEP-PCMH</b>	Survey of Healthcare Experience of Patients-Patient Centered Medical Home
<b>SPARQ</b>	Specialty Productivity Access Report and Quadrant Tool
<b>STEMI</b>	ST Elevation Myocardial Infarction
<b>SUD</b>	Substance Use Disorder
<b>TBI</b>	Traumatic Brain Injury
<b>VA</b>	U.S. Department of Veterans Affairs
<b>VAMC</b>	Veterans Affairs Medical Center
<b>VERA</b>	Veterans Equitable Resource Allocation
<b>VHA</b>	Veterans Health Administration
<b>VISN</b>	Veterans Integrated Service Network
<b>VistA</b>	Veterans Health Information Systems and Technology Architecture
<b>VLER</b>	Virtual Lifetime Electronic Record
<b>VSSC</b>	VHA Support Service Center
<b>Wifi</b>	Wireless Internet